THE IRON AGE

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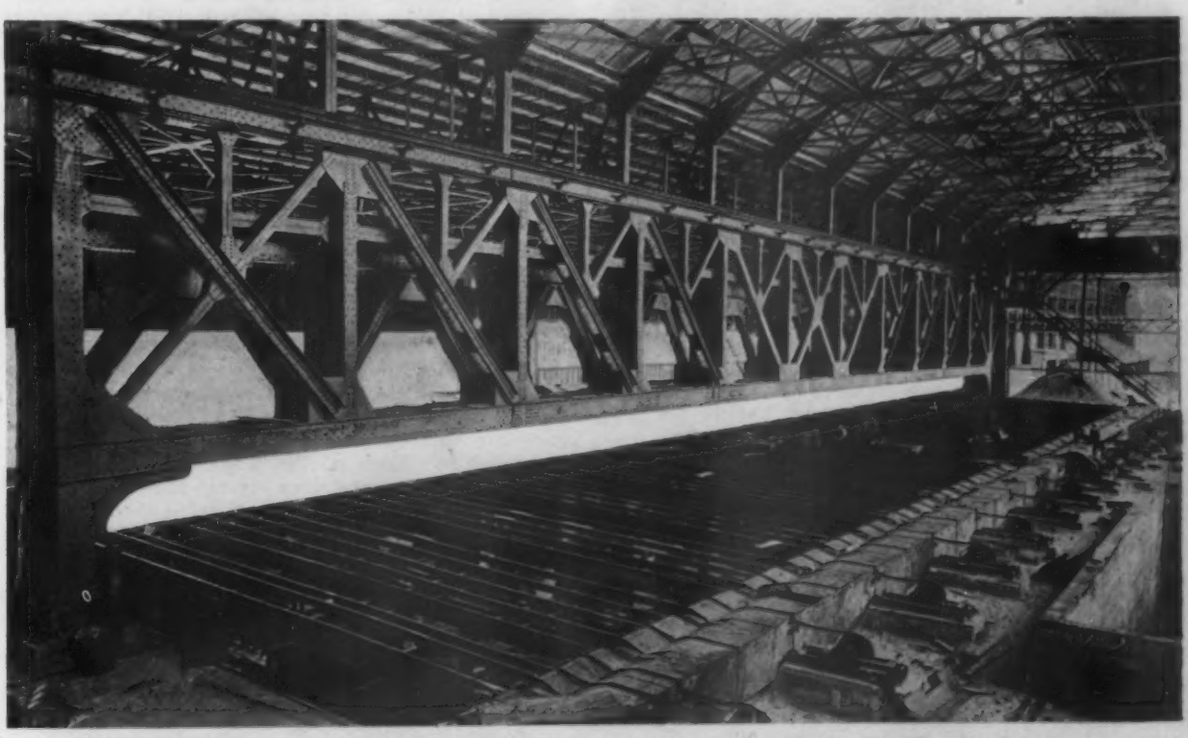
New Inland Merchant and Billet Mills

Bar Mill Stands Connected with Single Line Shaft—Kraemer Set Drive Largest Yet Built—Hot Bed Will Take Billet from Complete Ingot

BY GILBERT L. LACHER

A 14-in. merchant mill and a 24-in. billet and slab mill, just completed at Indiana Harbor, Ind., are the first additions to the rolling capacity of the Inland Steel Co. since the war period. Complementary to the new mills are four 100-ton basic open-hearth furnaces, also recently finished, which increase the steel ingot capacity of the company 18 per cent. The new units are located on the shore of Lake Michigan, in the No. 2 plant, which is separated by three parallel railroads from the original, or No. 1, plant. With the exception of the three blast furnaces and the by-products coke plant, the No. 2 plant has been entirely constructed since 1915. Ten 90-ton open-hearth furnaces and 28, 32 and 40-in. mills were built under the stimulus of war demand, reaching completion in 1916 and 1917. The recent construction of additional open-hearth furnaces and mills is testimony to an increase in demand beyond the wartime expansion of the steel industry, as well as to the growing importance of the Chicago district as a center of consumption.

Designed and constructed by the Morgan Construction Co., Worcester, Mass., the merchant mill has an estimated capacity of 12,000 to 14,000 tons of finished steel per month. It is a combination of the continuous and staggered duo-type. Two-high throughout, it contains six 18-in. continuous roughing stands and four staggered 14-in. finishing stands. The last four roughing stands are tied together in pairs to shorten the runs, while the tables between the first and second and the second and third stands repose on jacks so



Broadside Conveyor Serving the Billet Mill Is Unusually Long—250 Ft.—to Take a Billet from a Complete Ingot, thereby Eliminating Shearing and the Waste from Croppings. To extend the conveyor into the adjacent billet dock it was necessary to support the roof and the crane runways on a truss. Of double construction, this truss showed a deflection of only ¾ in. when supporting all of the overhead cranes, fully loaded

that they may be adjusted for the rolls. Steel is transferred from the last stand of the roughing mill to the first stand of the 14-in. mill by a "Y" skew roll table which delivers it into proper position for the next pass. The remaining passes are connected with the same type of table, but of progressively greater length to take care of the growing length of the rolled bar.

Material may be passed either through all four of the 14-in. stands or through only two of them, No. 7 and No. 10. The mill has a capacity to roll rounds from ⅞ up to 3-in. in diameter, equivalent sections of squares and angles, and flats up to 8 in. wide.

Both the roughing and finishing stands are driven from a line shaft 250 ft. long, at the end of which a Morgan reducing gear is connected by a 5-in. flexible shaft with the mill motor. The 5-in. shaft was introduced for safety considerations, being designed to break

Heating Furnaces Arranged for Side Charging, a New Feature in Design. Billets are delivered on a shuffle board table which deposits them on live rolls by means of which they are charged into the side of the furnace. A motor-driven pusher (the case of which was removed when the photograph was taken) advances the billets through the furnace chamber. The brick walls of the furnaces are covered with a lining of silocel brick, over which is an outside covering of steel plates between the buckstays

in an emergency, thereby protecting the remainder of the equipment. All the bevel gears driving the stands are inclosed in two-piece cast iron cases and run in a bath of oil. As a precautionary measure the gears are served also by a Bowser force feed oiling system. This system is used also for all other gears and pinons in the stands and tables, which likewise are inclosed in grease-type gear covers. The 14-in. stands are driven by spiral bevel gears, which reduce backlash to the minimum.

Power is supplied by a Kraemer-type adjustable speed a.c. General Electric induction motor. The Kraemer set complete consists of a 4750/2850-hp. 500/300-r.p.m. induction motor, a 1350-hp. 100-r.p.m. synchronous converter, and a 1700-hp. 480-volt 500/300-r.p.m. d.c. motor on the same shaft as the induction motor. Delivering 4500 hp., the set is said to be the largest of its type ever built. At synchronous speed it runs at 500 r.p.m., but this is adjustable down to 300 r.p.m. Current is taken directly from the line as delivered from the company's power plant at 2300 volts, 3 phases, 25 cycles.

In running the mill, the operator in the motor room brings the motor up to the synchronous speed, after which the roller may adjust to any desired speed down to the minimum of 300 r.p.m. For this purpose the control for a motor-driven rheostat has been located at a convenient point on the mill floor near the finishing stand. Nearby in a pulpit are located a master button to stop the main drive in case of emergency, separate Cutler-Hammer controllers for each mill table and a rheostat in the mill pulpit to control the speed of the rollers in the hot runout table.

The hot bed, of the horizontal double-grid type bisected by a runout table, was furnished by the Morgan Construction Co. By turning a switch the steel is directed at will from the runout to either side of the bed, which is 300 ft. long. On each side the bed is 18 in. wider than usual to give additional cooling capacity. The distance from the center of the runout to the delivery tables on each side is 26 ft. 6 in. A motor-driven kick-off extending the entire length of the bed on each side of the runout discharges the bar on to a straightener plate, where it is held until the next bar is ready to be dropped. From the straightener plate the bar is lifted and transferred to the cooling rack.

Operation of the bed throughout is electric. The hot runout rollers are driven from a single shaft by a 100-hp. 500/1000-r.p.m. 230-volt d.c. motor, furnished by the Reliance Electric & Engineering Co., Cleveland. The runout table motor, together with the rack, kick-off, shuffle board and delivery table motors, are located underneath one of the delivery tables on the side, where they are readily accessible and can be removed, if necessary, without tearing up the hot bed. It might be noted at this point that all industrial-type motors were furnished by the Reliance company, all table motors by the General Electric Co. and the crane motors by the Westinghouse Electric & Mfg. Co.

Direct current for the cranes and the auxiliary mill equipment is supplied by a 1000-kw. Westinghouse rotary converter, which converts 2300 volts a.c. to 250 volts d.c. In case this unit is out of service, direct current may be drawn from the main power station of the No. 1 plant. The converter is located in the motor room, which is equipped with a washed air system to keep the apparatus cool and clean. A novel feature is the removable roof of the room, which permits the use of overhead cranes for removal or introduction of equipment.

At the end of the hot bed delivery tables are Morgan Construction Co. angle straighteners, which are removed when plain bars are rolled, in which case the delivery tables are directly connected with 300-ft. shear approach tables. Each of the latter tables leads to a Morgan No. 2 motor-driven double-gage 75-ft. back shear table, from which cut material is discharged by motor-driven kick-off into a cradle, mounted on a scale platform having a capacity of 30 tons. The platform and scale were furnished by the Strait Scale Co., Kansas City, Mo.

Finished material is stored either beyond the shears in a space 85 x 300 ft., or in the area between the angle straighteners and the shears, 54 x 352 ft.

Extending along one side of the finishing end of the building is a shipping track, 720 ft. long. The handling of material to and from storage and onto cars is accomplished by overhead electric traveling cranes. There are three 15-ton cranes in the mill, all built by the Alliance Machine Co., Alliance, Ohio. The carriages of the cranes are solid steel castings. The girders supporting the crane runways are covered with solid plate, which forms a walkway along the side of the building. Another convenient arrangement is the provision of stairways on each side at the ends of the hot bed, with connecting passageways underneath. A depressed truck bay is located on one side of the mill for the delivery of supplies from the plant store room and for quick shipments of steel to nearby points.

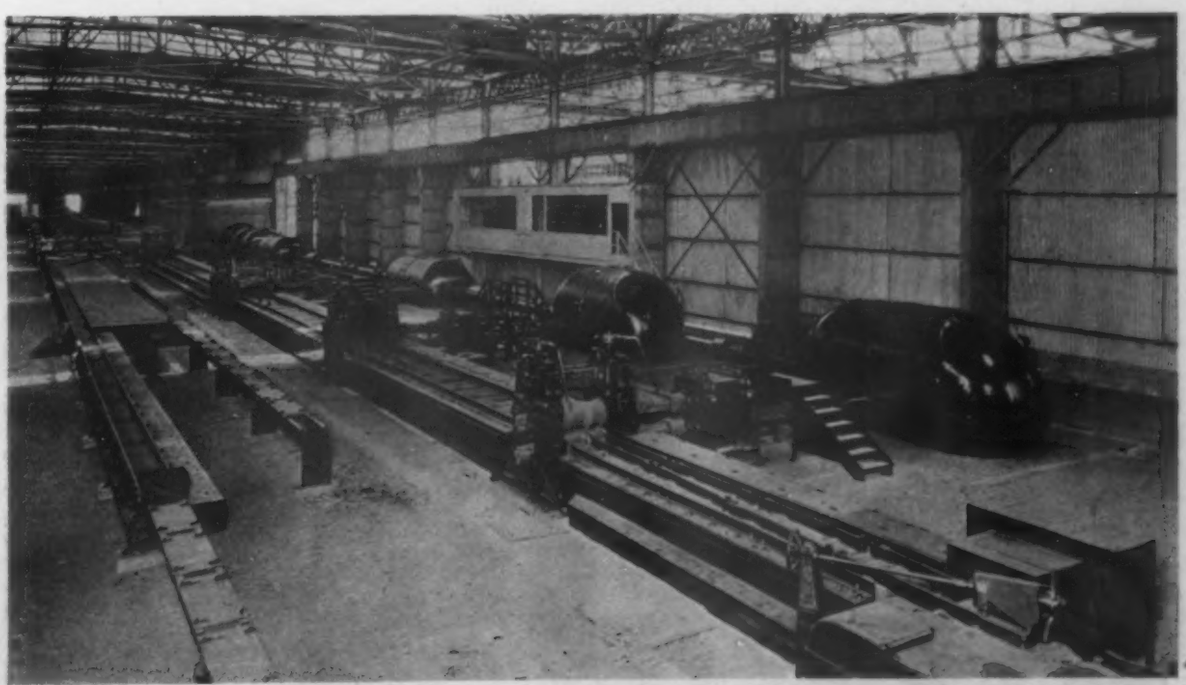
The mill building is 1584 ft. long and 105 ft. wide, the crane spans being 100 ft. The interior is painted gray, a color which improves the illumination. Natural

Between the 14-in. Stands Are "Y" Skew Roll Tables. The skew rolls deflect material to a position on the table from which it will be carried directly into the next stand. The triangular deflecting blocks give the tables the "Y" shape from which they get their name. The 14-in. stands are driven from spiral bevel gears which reduce backlash to the minimum

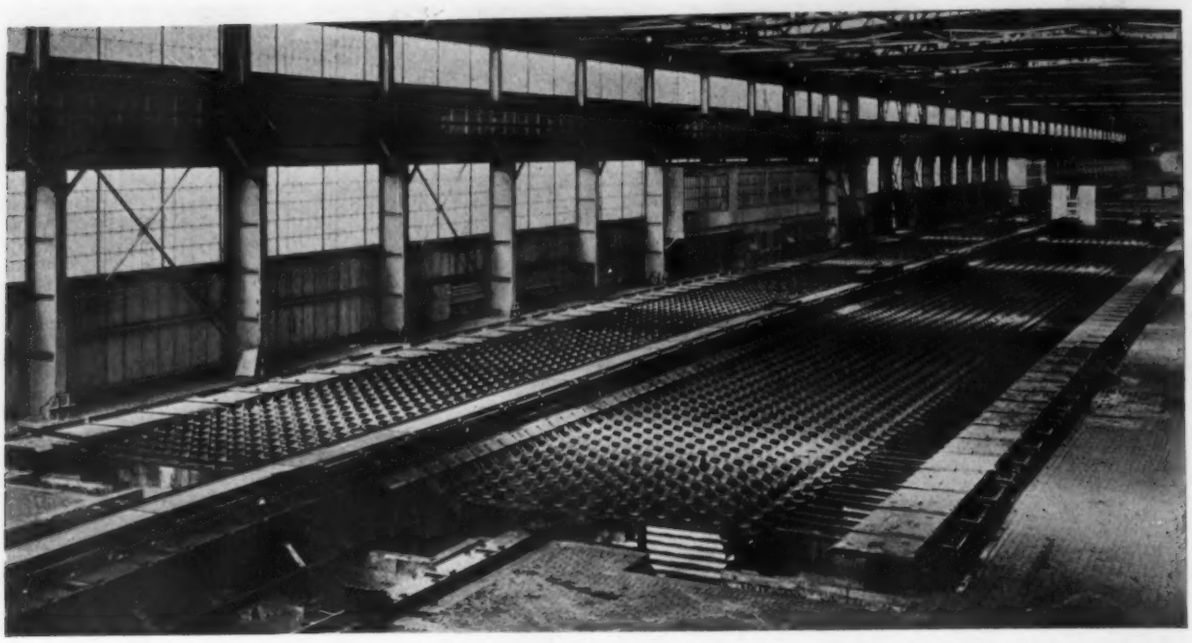
lighting is supplied by a considerable area of continuous sash in the side walls as well as in the roof, which is of the high and low bay type. At the finishing end, part of the wall on one side is without windows, to adjoin a future warehouse, the foundations of which are in. The walls are made of corrugated sheets, while the roof is of wood, covered with prepared roofing, furnished by Bird & Son, East Walpole, Mass., except over the heating furnaces, where pyrobar, supplied by the United States Gypsum Co., Chicago, was used. The pyrobar is covered likewise with Bird prepared roofing. There is a permanent floor throughout the building, either brick or concrete; brick is used largely, except on the storage platforms, which are of reinforced concrete because of the heavy loading to which they are subjected.

Coal and Ash Conveying System

At one side of the furnace end of the building is a coal delivery siding protected by an overhanging shelter. Here hopper cars are spotted and their contents discharged through a steel grating into a hopper underneath. From the hopper the coal is carried on an inclined continuous belt conveyor and transferred to a horizontal continuous belt conveyor, the axis of which is at right angles to that of the inclined belt. The horizontal conveyor carries the coal to a bucket elevator, which raises it to another horizontal conveyor



Comprising Six 18-in. Continuous Roughing Stands and Four Staggered 14-in. Stands, the Merchant Mill Is a Combination of the Continuous and Staggered Duo-Type. All of the stands are driven from a single line shaft, 250 ft. long. The bevel gears from the line shaft are inclosed in two-piece cast-iron cases and run in a bath of oil



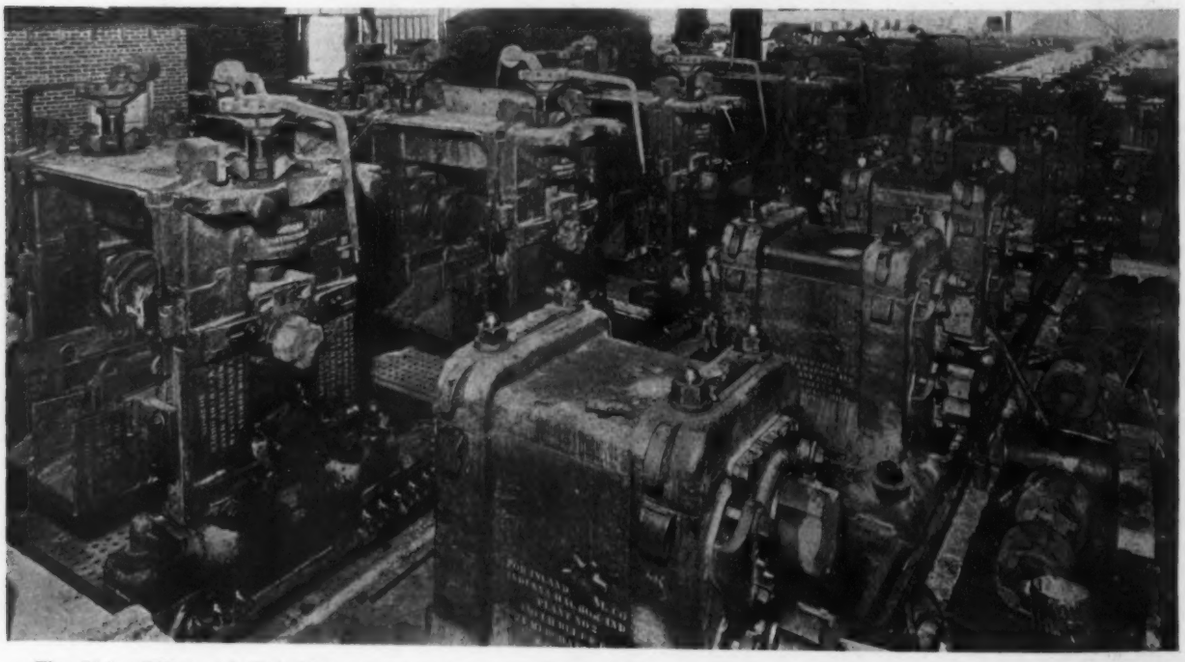
Of the Horizontal Double-Grid Type, the Hot Bed Is Bisected by a Hot Runout Table, with rollers driven by an adjustable-speed motor from a single line shaft. The view gives an excellent idea of the length of the building. Beyond the bed is storage space, 652 ft. long

serving the gas producers. The same horizontal conveyor which feeds the elevator is used for handling ashes.

An annular ash chute inclosing the bottom of each gas producer is equipped with a trip, so that ashes are held in suspension while the conveyor is handling coal. The ashes are carried by the conveyor to the same bucket elevator which handles the coal, but are raised only to the mouth of a 75-cu. yd. storage bin situated below the coal conveyor serving the producers, and at an elevation above the railroad siding. Ashes are discharged from the bin through a chute into railroad cars for final disposition. The conveying equipment was supplied by the Link-Belt Co., Chicago, and is motor-driven. Automatic push-button control has been provided for starting and stopping the system.

Heating Furnaces and Gas Producers

The merchant mill is served by four 10-ft. producer gas machines and two flat-roof gravity-charge continuous recuperative heating furnaces with inside hearth dimensions of 13 x 40 ft. Space has been provided for another furnace and two more producers. Furnaces and producers were furnished by the Morgan Construction Co. The brick walls between the buckstays are covered with a lining of silocel brick, over which is an outside covering of steel plates. The furnace is arranged for side charging, a new feature in design.



The 24-in. Billet and Slab Mill Comprises Six Continuous Two-High Stands and an Edging Manipulator. The estimated capacity is 75,000 tons a month

Billets are delivered on a shuffle board table which straightens them out and deposits them on live rolls, which convey them into the side of the furnace at the end.

Motor-driven pushers advance the billets through the furnace chamber. The heated billets, which remain in the chamber an average of 1 hr. 15 min., pass by gravity out of the discharge end of the furnace onto a roll line serving the mill. The gearing for the live rolls, which are operated on a line shaft from a single motor, is entirely inclosed in heavy cast iron plates. All bearings are self-oiled, being served by the Bowser force feed oil system installed for all the mill and table gears and pinions. Blast for the furnaces is supplied by Coppus turbo-blowers instead of motor-driven fans. Each furnace is equipped with a steel stack, 8 ft. in diameter and 154 ft. high.

Billet Yard and Scale Pit

Parallel to and adjoining the furnace end of the mill is a covered billet yard, 80 x 485 ft., with a capacity of 8000 tons and commanded by two 15-ton overhead electric traveling Alliance magnet cranes. In the yard also is a scale pit into which mill scale is flushed, being then dug out by crane bucket and loaded onto cars.

Steel work for the mill and billet yard was fabricated and erected by the Morava Construction Co., Chicago, and the foundations were laid by the Nash-Dowdle Co., Chicago. Beyond the furnace end of the mill is a roll shop, connected with the mill room by 3-ft. gage track, on which operates an electric buggy used for conveying rolls.

Billet Mill Has Unusually Long Hot Bed

The 24-in. billet and slab mill is directly in line with the company's 40-in. blooming mill and is fed by it. It consists of six continuous two-high Morgan Construction Co. stands. Between the fourth and fifth stands is an edging manipulator driven by a 250-hp. 464-r.p.m. d.c. Westinghouse motor. All of the stands are driven by herringbone pinions and are connected with a single line shaft operated by a 6250-hp. 2200-volt 3-phase 25-cycle constant speed Westinghouse motor, running at 368 r.p.m. The mill rolls 8 x 8-in. blooms down to 4 x 4-in. billets and has an estimated capacity of 75,000 tons a month. It was laid out to take the product of both the present blooming mill and a projected one, and was so arranged that a 19-in. sheet bar mill and a small billet mill may be added later.

From the mill billets are delivered to a broadside transfer, which is of unusual length, 220 ft., to take a billet from a complete ingot, thereby eliminating shearing and the waste from croppings. The importance of this may be gathered from the fact that the mill can roll a 13,000-lb. ingot at one time without cutting it up. The broadside conveyor, operated by a 70-hp. motor, was furnished by the Morgan Construction Co. Its construction necessitated the design and erection of a double truss of unusual load capacity. The billet mill is located in an extension of the blooming mill and billet dock. The blooming mill, originally 60 x 920 ft., has been extended 260 ft., while the adjoining billet dock, which had the same dimensions as the blooming mill, was lengthened 540 ft.

To extend the conveyor into the adjacent billet dock it was necessary to support the roof and crane runways on a truss. This truss is of double construction, one side being 14 ft. deep and the other 22 ft., to overcome the effects of eccentric loading. Over 220 ft. long, it showed a deflection of only ¾ in. when supporting a 50-ton and two 20-ton cranes on one side and four 10-ton cranes on the other side, all fully loaded.

The broadside conveyor delivers billets to a shear table which advances them to a Mesta Machine Co. 600-ton guillotine shear. They then are conveyed by roller table to a cradle scale built by the company. From the scale the billets are kicked off into a cradle from which they are transferred to storage by overhead crane.

Only one additional traveling crane, a 20-ton Alliance overhead electric, was put into this department and that was installed on the dock side.

BUREAU OF STANDARDS

Growth of the Testing Work in the Last 22 Years

An increase of more than one hundred times its initial volume has taken place in the testing work of the Bureau of Standards during the 22 years of its existence. During the first fiscal year, that is, up to June 30, 1902, there were completed 1055 tests of all kinds. During the year just closed about 140,000 tests were conducted by all divisions of the Bureau.

Most of these tests were executed for other branches of the Government, practically every branch making use of the facilities provided. The Bureau acts as the principal testing laboratory of the Government in the fields of physical science and engineering, and expenditures amounting to many millions of dollars are dependent on its findings. Its tests, which cover a large part of the supplies purchased by the Government, serve to insure that these supplies are of the right degree of excellence and in conformity with the specifications.

Much testing is also done for commercial firms and for individuals, over 40,000 test folders, covering over 600,000 such tests, for which a charge is made, having been issued since the founding of the Bureau. The Government work is given precedence, however, and in some cases all testing except that for the Government has had to be refused because the demand exceeds the facilities for doing the work.

The inability to meet this demand is unfortunate. It is very desirable for the Bureau to carry out certain tests for outside parties, not only as a means of assisting American industries and American citizens, but because the information so gained is of value to the Bureau. It is not to be supposed that the Bureau of Standards has any idea of entering into competition with commercial testing laboratories, but there are certain classes of work considered desirable for it to undertake because the results are of public benefit.

As a result of the stimulus given to American industry during and following the war, many important industries are now established in this country which did not exist prior to 1914. Many of these are dependent on the Bureau for the testing of their fundamental standards and in these cases, and indeed in most test work, prompt results are essential.

The Bureau's experience in the field of scientific and industrial instruments is particularly illuminating. Before the war most high grade scientific instruments were bought abroad and the development of instruments for use in industry was in its infancy. Now, over 85 per cent of the scientific instruments used in the United States are manufactured in this country. There has been a tremendous extension of the use of instruments in all fields of industry. In the meantime the Bureau's facilities for testing these types of apparatus have not been materially increased and the American manufacturers have been greatly handicapped by their inability to get adequate service from the Bureau in developing and testing their instruments. Additional support for this important part of the Bureau's work would bring about increased savings in Government expenditures, and would result in higher efficiency in many lines of industry and in better finished products for the public. In certain lines American manufacturers have been compelled to adopt unsatisfactory substitutes for adequate tests, and in some cases they have even had to send instruments abroad and to Canada for tests.

The Bureau of Standards itself was established as the result of an insistent demand that our manufacturers be made independent of other countries for precise measurements.

INCREASED EFFICIENCY

Interesting Facts Developed by the Commissioner of Labor Statistics

WASHINGTON, Aug. 5.—The war worked marvels in the reorganization of industry in increasing the productivity of labor, according to Ethelbert Stewart, Commissioner of Labor Statistics, Department of Labor. After making careful studies of many industries throughout the United States, Mr. Stewart has developed some interesting figures to support his statement. He estimates that, taking it all in all, 10 per cent fewer men are performing the same work that was performed before the war.

The records of the Bureau of Labor Statistics, he pointed out, show that in the production of pig iron, from 14 to 16 one-man hours were required per ton in 1890 and 1891, while today in the Eastern district two hours and 18 minutes one-man time is required per ton, while in the Pittsburgh and Great Lakes districts one hour and 54 minutes one-man time is required per ton, and in the Gulf States district four hours and 30 minutes one-man time. In the best furnaces, he declared, it costs one hour and 12 minutes one-man time to produce a ton of pig iron, and the range is from this all the way to 11 hours, though the average for any one district is not over four and one-half hours. He suggested that if in the best furnaces a man can produce a ton of pig iron for each hour and 12 minutes per man employed, labor shortage might be solved by making over the other blast furnaces so that they will not require five or six times this number of men. It is far better to stop wasting men, he asserted, than to let down the immigration bars and "flood the country with more men to waste."

Results at Worcester

A plant at Worcester, Mass., employing 6000 people, according to Mr. Stewart, is producing more goods with 600 fewer employees than it had before the war. Formerly steel billets in this plant were said to be carried by "low wage workmen from the stock pile to the initial piece of machinery." Now a huge magnet attached to a crane picks up tons of these billets at a time and swings them around where they are needed, one crane engineman doing the work of 66 men. A New England can manufacturing plant reports to the bureau that it has increased its production 100 per cent by the simple routing of material, placing the machines in rows in the order of their place in the work of production so that the material merely glides from one machine to another instead of being trucked from one part of the plant to another as before. The whole question of trucking and assembling has been made mechanical and automatic.

Working Part of Year

Window glass employers, Mr. Stewart said, had a working agreement with the union to run the plants 17 weeks out of the year because in that time they could supply all the window glass that could be sold, the men thus getting their work all together and their idleness all together, so that they could use this spare time to fill in with other industries or other forms of work, a means to save men. It was asserted that 25 per cent of the bituminous mines of the United States employing 40 per cent of the present total number of workmen engaged in the industry could by running 312 days a year produce all the bituminous coal that can be used in the United States or exported. If all the common brick made in the United States were made on the best known machines such as are actually now operating, it was declared, the entire supply could be produced with less than one-third of the men now engaged in brick manufacture. Figures were given to show that in agriculture the situation is still worse. The conclusion was reached that if agriculture in the United States was as efficient as it is in Illinois, itself said to be none too good, there would be 4,619,372 fewer persons engaged in it than now.

The increased productivity of labor since the war, Mr. Stewart said, means that the employment index of today stands for greater productivity than the employment index of 1914. The bureau index, taking 1914 as 100, reached 115 in May and June, 1920. In January, 1921, it had fallen to 79; in June, 1923, it went to 103, and in July it dropped to 100, or precisely the same as the basing point in July, 1914. But, it was explained, the 100 of July, 1923, means a whole lot more in actual output than did the 100 of July, 1914.

Remedy Lies with Labor

"This leads to the consideration of the fact that the remedy for labor surplus and labor shortage lies with industry itself," said Mr. Stewart. "Some stabilizing may be done with profit to everybody. This employment movement, which resembles the pumping of an accordion or the inflation and blowing of bellows, might, if straightened out, have very happy effect both upon the unemployment and upon labor shortage." He suggested the bringing of the jobless man and the manless job together "regardless of any question of poor or good economics behind these demands."

It was pointed out that the employment situation at present presents nothing unusual. The statement was made that there are always many out of employment, no matter how busily industry is engaged. This unemployment is the ordinary labor turnover, in which men are idle for a short time in shifting from one occupation to another. Present conditions in that respect were said to be normal, with no large number permanently unemployed, except, of course, the "unemployable," who never can be taken into account.

Mr. Stewart declared that any statistical record of unemployment as such is physically impossible. He pointed out a number of reasons. The number who are out of work from day to day varies and can only be located when they apply to some agency to assist in securing employment; it is questionable, he said, as to whether or not 50 per cent of the people who really desire work if they can get just what they want ever apply to any sort of employment agency; the number and variety of employment agencies make it practically impossible to schedule with sufficient frequency to mean anything the number who really do apply; it is impossible to get returns from employment bureaus of corporations, associations, etc., showing the number registering for work, it was said.

Mr. Butler's Autobiography

YOUNGSTOWN, Aug. 4.—Despite his fourscore years and more, Joseph G. Butler, Jr., veteran iron and steel maker of the Mahoning Valley, beloved far and wide, retains an abiding interest in the industry, his friends and the community where he lives. Mr. Butler is now engaged in what promises to be his final literary achievement, his autobiography, which he hopes to complete by the end of this year. He is also planning to enlarge the Butler Art Gallery, a stately Georgia marble structure opposite his residence on Wick Avenue, Youngstown, which he donated several years ago to the "people of the Mahoning Valley." In the meantime this gallery has become the artistic center of the community, in a large sense of the word.

On Dec. 21, 1924, Mr. Butler will have reached the age of 84. His autobiography, awaited with interest, will virtually be a history of the development of the iron and steel industry during the period of 50 years or longer that Mr. Butler was actively associated with it.

Every obsolete machine tool continued in wasteful use challenges the selling ability of the builder of better machines, says E. F. Du Brul, general manager National Machine Tool Builders' Association. Here is the list he gives of a few of the high crimes and misdemeanors that obsolete machine tools commit against the law that capital invested in machinery must earn the greatest profit possible: Obsolete machine tools impair, exhaust, sap, undermine and destroy profits; they ravage, filch, pilfer and steal profits; they throttle, hamstring, choke, cut off and kill profits.

Misinformation on Pittsburgh Basing Case

Commission Lacks Power to Enforce Decision—Cotton Tie Case, Involving Alleged Unfair Competition, Is of Interest at Present Time

BY L. W. MOFFETT

WASHINGTON, Aug. 5.—Out of the mass of misinformation that has been published with regard to the cease and desist order of the Federal Trade Commission in the Pittsburgh plus case, the confusion surrounding this famous proceeding has become greater. It is evident that many articles presuming to discuss this case intelligently were written by those who had a woeful lack of understanding of the case. Reading of the articles gives the impression that they were struck off on the spur of the moment either as "feature" or "follow-up" stories, which had been ordered as being necessary supplements to the subject. There seems to have been a vague idea that the case was extremely important, though many of the writers apparently were unable to say why, and because of this importance a series of stories was required.

Despite the evident hurry in which these articles seem to have been written, the lack of understanding of the case shown is remarkable. Volumes of material on the subject are available and have been presented by both sides. Either the majority opinion of the commission itself or the dissenting opinion by Commissioner Nelson B. Gaskill would have afforded sufficient information to keep these writers within the lines of accuracy. But even "research" to this extent was not engaged in and the issue in the public mind is perhaps more befogged than ever before. It is conceivable that this is a source of regret to all sides directly involved in the case because of the unnecessary agitation it excites.

Preposterous Reports

Lurid stories have been published, in which it was predicted that the Steel Corporation would completely ignore the order, also a preposterous presumption. Judge Gary dissipated the possibility of such a pretended belief, although it must have been known even to these writers that the Steel Corporation or any other institution of self-respect and respect for the Government itself would under no circumstances attempt to disregard any action coming from a Government source.

To round out these statements and carry out the idea of a "bitter fight," some of the stories went on to declare that in the event the Steel Corporation ignored the order the Federal Trade Commission would go to the courts and apply for an injunction restraining the Steel Corporation from "fixing" prices on an f.o.b. Pittsburgh basis. The stories would indicate that all prices were "fixed" or quoted on a uniform price at Pittsburgh, in the face of the many explanations that had been made showing the varying methods of quoting steel prices, some on an f.o.b. Pittsburgh basis, some on a delivered basis, some allowing for freight, and in a market like the present some would show a wide spread in quotations.

Commission Lacks Power

The lack of understanding shown in this kind of publicity in a great number of cases apparently does not show any vicious hostility, but rather indicates that the writers were "playing" to what they consider a popular appeal. These stories have entirely misconceived not only the operation of the Pittsburgh base, but the authority of the Federal Trade Commission. As is well known by those who have studied the acts under which the commission operates, it has no power to enforce its orders. It can assess no penalty. Its jurisdiction is largely of a negative character. To a great extent it must rely on the moral force back of its orders. It is recalled that when the Federal Trade Commission was before Congress President Woodrow Wilson sought to have the commission possessed with the power of enforcing its orders through penalties and at the same time to persuade Congress to authorize the commission to pass upon the legality of business organizations, such as trade associations, etc., in advance. But these powers were never bestowed upon the commission. It therefore is obvious that the commission would not have power to get an injunction or take any similar drastic step against the Steel Corporation for not abandoning the so-called Pittsburgh base practice.

Of course the Steel Corporation will not disregard the order of the commission but, if it should do so, the commission would have redress by going before a court of appeals and asking that the Steel Corporation be compelled to show why it should not be held for contempt.

The question of its lack of jurisdiction has been a source of a great deal of consideration by the commission itself. It frequently has sought to get Congress to enlarge its powers. The commission on the whole has fared rather badly in the courts in putting into effect its orders because of its restricted powers or because of the erroneous construction it puts on the authority it has. The Pittsburgh case was brought under Section 5 of the Federal Trade Commission act dealing with unfair methods of competition and Section 2 of the Clayton act relating to price discrimination.

When Commission Was Defeated

Among the cases dealing with unfair methods of competition in which the commission was defeated was that of Warren, Jones & Gratz, which related to the sale of cotton ties and bagging. This case had come before the Supreme Court upon a review of an order of the commission involving unfair competition. The commission's order was reversed upon a rule of pleading. The court held that the commission had not specifically charged the respondent with a monopoly but had limited its charge to that of unfair competition in requiring customers of the respondent to buy a certain brand of bagging in order to get a supply of cotton ties. It was claimed that this particular company was the only one in a position to supply the ties. This decision placed the first limitation upon the power of the commission in its development of the law of unfair competition as applied to business practices.

In the majority opinion rendered through Justice McReynolds, it was noted that the words "unfair methods of competition" are not defined by statute and that their exact meaning is in dispute. The court held that these words are clearly not applicable to practices never heretofore regarded as opposed to good morals because characterized by deception, bad faith, fraud, or depression, or as against public policy because of their "dangerous tendency unduly to hinder competition or create monopoly."

The Question of Jurisdiction

This opinion is mentioned by Commissioner Gaskill in his dissenting report in the Pittsburgh base case in the course of which the commissioner claims that the commission has no jurisdiction. This court decision also is particularly interesting in the light of the statement made on Tuesday of last week by Judge Gary, in which he declared that "So far as we are concerned, there never should be any reason for governmental action to compel us to do what is right." Judge Gary

was discussing the Federal Trade Commission's orders in the Pittsburgh base case. The effect of the decision mentioned was to hold that the commission in its application of the law of unfair competition is held to those practices which have heretofore been declared by the courts to be unfair competition.

Justice Brandeis, in a dissenting opinion in this case, held that the commission should be allowed to develop the law of unfair competition in the prevention of unfair methods, and maintained that the new law was directed to methods of present-day business.

With regard to Section 2 of the Clayton act, directed against discrimination in prices, this section first says that it shall be unlawful to discriminate in prices among purchasers. It has been urged that there are provisos which weaken the first statement because it is provided that discrimination shall not be unlawful if made because of differences in the grade, or differences in the cost of selling of the commodity or if made in good faith to meet competition. The order of the commission in the Pittsburgh base case carefully recognizes this construction, and in its attempt to prevent the Steel Corporation from alleged price discrimination, sets forth these provisos.

HARD-FACED FORGING DIES

Combination with Tough Shock-Resisting Back Achieved Through Double Casting

Using a new process made possible by a combination of metallurgy and organic chemistry, the nature of which is withheld pending the granting of a patent application, the Dycast Steel Co., Collinsville, Conn., is producing some unusual steel dies. With a face of unusual hardness and denseness, which will retain a cutting edge remarkably long, the tough back is relied upon to absorb shock and prevent chipping or cracking where too great hardness is adopted in an effort to prolong the life of the cutting edge.

It has always been a problem to obtain a cast material of this sort in which the hard face was cast first and the softer back cast on top of it, because the high-carbon qualities of the face have made it lighter in weight and the difficulty of retaining a heavier fluid floating upon a lighter fluid previous to the setting of the casting has interfered with the success of the process. The material used in the present case obviates this difficulty by the (at present) secret ingredient used with the steel, which not only gives it the higher specific gravity needed for the lower metal in the mold but also gives it the quality of becoming almost instantaneously plastic—so much so that the falling of the second stream upon the first material does not cause the second material to penetrate to an appreciable degree, while the temperatures involved insure a perfect weld of the two materials at their point of juncture.

Tests made of such materials after being cast in this manner have shown that the point of welding is stronger than either of the two materials welded, and that the break when the material is tested to destruction comes outside the welded area. There is a certain combination or commingling of the two materials over a narrow space at the weld, the extent of which is not definitely marked. On a polished sample of the material it is impossible to see the point of puncture. This point does show up on the material as it is taken from the mold, by reason of the fact that the thin line of demarcation is made manifest by the plasticity of the harder material, which sets with a tiny rounded corner. Grinding around the edge to a depth of about 1/64 in., however, in tne samples observed, gets rid of this surface mark and conceals effectually the point of junction of the two metals.

Use of the crucible process makes it easy to handle the material in this way. Small heats, one of each metal, are poured by two men, one following immediately after the other. The first man pours the denser and harder material until a bleeding hole on one side of the mold gives warning that the predetermined height has been reached. This man then proceeds to the next mold, while the second man completes the pouring of the first.

Under the usual method of welding a refined steel to a softer steel, the softer is poured first and the other poured upon it, unless the two are poured separately and welded mechanically by forging at a high welding temperature. Difficulties with the harder steel follow this treatment, disintegration of the higher carbon material being caused sometimes by the high temperature. By the method described above, each metal is heated in a separate crucible and melted at a temperature suited to its analysis. Both are put through the special process for obtaining high density, which mechanically changes the reaction of the metal. The steel required for high-duty work, that is, the facing of the die or tool, is then treated in a manner to exaggerate its normal specific gravity, which treatment at the same time causes it to become plastic almost instantly in a sand or iron mold. This permits it to resist the shock from the sudden pouring in of the lighter hot metal, and results at the point of contact of the two metals in almost a straight line of homogeneous molecular cohesion.

Surfaces of dies may thus be plated with steel of any desired analysis and the backing may be composed of any desired analysis. This makes it possible to face dies with a steel of such great density as has been considered impractical to use because of its sensitiveness to shock, which would break it apart. In the dycast method of making a composition steel block the softer and tougher back acts as a cushion and avoids this trouble.

In one instance a drop forging die was made with a hard face 2½ in. deep and a back of soft steel about 8 in. thick. The face had an analysis including tungsten 15.50 per cent, chromium 3.25 per cent, vanadium 0.90 per cent and carbon 0.52 per cent. The carbon in the backing steel was 0.38 per cent. This die was hardened by preliminary heating at 1600 deg. Fahr., removed from the furnace, when it was placed between cold brick reaching slightly above the plated section, then the high-speed steel was raised to a temperature of 2250 deg. The die was then submerged in oil and after being cooled showed a Brinell hardness of 625 on the working surface. It was then reheated to 1125 deg. and permitted to cool for about 14 hr. in the furnace. The Brinell reading then was 480.

Such a die as that just described has produced as high as 103,000 forgings, while the best of six blocks of steel tested against it produced only 20,000 forgings. The six blocks were of steel now in general use for drop forging work and contained an average of 0.72 per cent carbon and 0.80 per cent manganese.

Bar Mill Being Operated by Illinois Rolling Mill Co. at Joliet

An 8-in. Belgian type bar mill in production at Joliet, Ill., is now the property of the Illinois Rolling Mill Co., 1049 First National Bank Building, Chicago. The company purchases billets and converts them into light bars, bands, angles, channels, etc., and also specializes in the rolling of alloy steel bars for automotive and agricultural implement manufacture.

The officers of the company are as follows: C. H. Nichols, president; F. C. Richey, treasurer and sales manager; D. D. Richey, secretary and E. F. Sharpe, general manager and superintendent. The officers have been connected with the coal industry for a long time, while Mr. Sharpe has had an extensive experience in the manufacture of light and heavy forgings.

The Wickwire-Spencer Steel Corporation announces that its Clinton, Mass., Mount Wolf, Pa., Blue Island, Ill., and Wright Works, Worcester, Mass., immediately will begin increased operations and that increased employment at these, as well as its Palmer and Spencer, Mass., plants will be speeded up as quickly as possible. The plants concerned are largely weaving units, and in the aggregate employ approximately 3000 workers.

Spur Gear Speed Transformer

A spur gear speed transformer designated as its Industrial Type transformer has been brought out by the Hill Clutch Machine & Foundry Co., Cleveland. This is for use where speed changes are required from motor to machine and from shaft to shaft and for such service as reducing speeds in connection with conveyor drives and for steel plant and other industrial uses where transformer units are operated under continuous or heavy service conditions. The speed change can be

Spur Gear Speed Transformer. Simplicity and accessibility are features of the unit, which is available in seven sizes. The gears run in an oil bath. The lubrication is by means of the splash system

small or large as desired for practical power transmission. It is a closely coupled unit and requires comparatively little space.

The device is made up of a nest of plain spur gears revolving in oil and changing the speed of the input shaft to the desired speed of the output shaft. Two pairs of gears are used for small speed ratios and four pairs for large ratios, the even number of gears being necessary in order to obtain the same direction of rotation of both shafts. The power transmitted is the same in both shafts. The gears have 20 deg. involute cut teeth. It is pointed out that the short length of these teeth combined with powerful cross section insures great strength. The gear housing is a one-piece casting containing one large bearing braced to the housing. At one end of the housing is a removable housing bearing for the high-speed shaft and at the other end a removable housing bearing for the low-speed shaft. With this construction both shafts are supported in double bearings. The housing cover is a plain casting, its only function being to seal the housing. The two intermediate shafts are fixed in position in the housing. Set screws in the high speed end of the housing secure these shafts against rotation and cap screws in the low speed end of the housing draw both shafts against shoulders and the housing itself. The first intermediate shaft carries two sets of spur gears and the second shaft one set, these gears revolving on their fixed shafts. The high-speed shaft carries a pinion and the low-speed shaft a large gear. All bearings are of bronze. Automatic lubrication is provided by a splash system and is effected by a circular disk on the high speed shaft.

The transformer is made in seven sizes. Each size has a number which bears a fixed relation to the diameter of the low speed shaft and each number represents the horsepower this shaft is capable of safely transmitting at 100 r.p.m. The horsepower capacity of the different sizes at that speed ranges from 10 to 160.

The twenty-five cities which led in plans filed and permits issued during the half year ended June 30, showed a gain of 11 per cent over 1923, according to the National Monthly Building Survey prepared by S. W. Strauss & Co. In June these same cities gained 19 per cent over the same month last year and 18 per cent over June, 1922.

The Spencer, Mass., plant of the Wickwire-Spencer Steel Corporation, on part time for some weeks, is now on full again. Employees in the fine wire drawing and other departments have accepted a cut in wages, approximately 10 per cent. About 200 are employed at this plant.

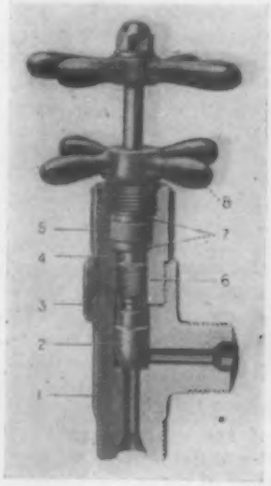
Steel Trade Extension Plan Committees

The Trade Extension Committee of the sheet steel manufacturers comprises beside W. S. Horner, president of the National Association of Sheet and Tin Plate Manufacturers, who was named chairman of this committee when it was instituted at the second annual meeting of the Sheet Steel Executives at White Sulphur Springs, W. Va., May 12 to 15, J. B. Andrews, Newport Rolling Mill Co., Newport, Ky., Charles O. Hadly, Alan Wood Iron & Steel Co., Philadelphia, Severn P. Ker, Sharon Steel Hoop Co., Sharon, Pa., Walter C. Carroll, Inland Steel Co., Chicago, W. H. Abbott, Wheeling Steel Corporation, Wheeling, W. Va., and G. H. Charls, United Alloy Steel Corporation, Canton, Ohio. Walter W. Lower, secretary of the National Association of Sheet and Tin Plate Manufacturers, is treasurer of the committee and C. L. Patterson is manager of the central office located at 715 Oliver Building, Pittsburgh. The advisory committee comprises Charles O. Hadly, chairman, Walter E. Watson, Youngstown Sheet & Tube Co., Youngstown, A. T. Hunt, Seneca Iron & Steel Co., Buffalo, W. W. Sebald, American Rolling Mill Co., Middleton, Ohio, P. F. Voigt, Jr., Allegheny Steel Co., Brackenridge, Pa., J. H. Fitch Jr., Newton Steel Co., Youngstown, Ohio, H. A. Roemer, Superior Sheet Steel Co., Canton, Ohio, A. M. Oppenheimer, Apollo Steel Co., Apollo, Pa., and W. L. Latta, Wheeling Steel Corporation, Wheeling, W. Va. Crosby-Chicago, Inc., which formulated the trade extension plan, will direct the advertising in connection with it.

Develops New Valve for Oxygen Manifolds

The Oxweld Acetylene Co., 30 East Forty-second Street, New York, has developed recently the valve shown herewith which is for use in connection with oxygen manifolds.

The valve has a swivel tip on the stem. The body, *1*, has a formed seat receiving the stem tip, *2*. This



Valve for Oxygen Manifolds, of Which Fool-proof Construction Is a Feature Emphasized. The stem screws into the stuffing box and should the handwheel be unscrewed all the way, internal parts of valve would not be blown out

tip is attached to and carried by the stem, *4*, by means of a swivel joint, this arrangement being intended to permit the tip to seek its own natural seat in the body. The stem screw is in the inner end of the stuffing box, *6*, which is made gas tight into the body by means of the lead gasket, *3*. The stem itself is made gas tight by the rubber packing, *5*, which is compressed between packing rings, *7*, by means of the handwheel and nut, *8*.

Fool-proof construction is a feature emphasized by the makers. Should the handwheel be unscrewed all the way, there is no danger of the internal parts of the valve being blown out by pressure, because the stem screws into the stuffing box. Even if both the stem and the handwheel were unscrewed, the parts could not come out because the large end of the stem would lodge against the stuffing box.

Trained Ears as an Asset to Industry

Experts Hear Dull Tools, the Temper of Metals and Defects in Product and Operation, Singling Out One Machine in All the Shop Roar

THE possibilities in the training of the ear to recognize sound waves to which in the ordinary ear there is no response are quite as interesting industrially as artistically. The leader of an orchestra has trained his ear to pick out the false note of a single instrument, whereas the average listener hears the combination of sounds, without any separate appreciation of the work of a single performer. With the ability of the trained ear to catch a faint sound out of a great mass and volume of heavy vibrations there goes also the power to disregard what to the ordinary ear is deafening noise.

Detecting the One Clogged Machine

In telling of the value of trained ears to industry, the *Chase Diamond*, the publication of the Chase works of the Waterbury Mfg. Co., Waterbury, Conn., has an interesting story of the gifts of hearing some of the company's employees have developed, saving thousands of dollars a year by the detection of improperly working machines or by preventing defective product from going on the market. The article says of the ability of John Shoner, foreman of the screw and rivet department, to recognize variations in the noise of his department:

"A 'header,' a machine which makes screws and rivets out of brass wire, is a deafening machine to listen to with its clang of metal on metal as the steel dies crash together and pound out little copper rivets or brass screws. A room filled with long lines of these headers all pounding at once is noise with a capital N. You can scarcely hear your companion shouting at you above the uproar, but if you will look across the room you will see John Shoner sitting quietly at his desk intent on figuring out his department costs or looking over his orders. He actually doesn't hear the tremendous noise that is going on. But if in the midst of this uproar a wire stops feeding into the machine, or the machine clogs, or the metal is not running through right, Shoner can feel the change of sound and is on the job to fix what might develop into serious trouble and is now only a temporary delay. This faint difference in sound is lost in the aggregate roar of the machinery to the ordinary observer, but to one trained in noises it is louder than all the rest."

The article deals with three other employees in the Waterbury plants whose special acuteness of hearing has proved highly serviceable:

Picking Out a Change in Sound Rhythm

"Foreman Finkenzellar of the eyelet department has the same ear keenness in a different line of work. An eyelet machine is really a line of six or eight presses rolled into one, and as each plunger comes down one after the other, dragging the metal through the dies, it makes a very distinct, sharp impact. A roomful of these eyelet machines sounds like a troop of locomotives. But in spite of the deafening noise, Bill never lets any of his big machines put anything over on him. When one of his automatics gets out of time, or when some of his tools are not set up properly, the slight change in the rhythm of the moving presses or the almost imperceptible tapping of a broken part is like a warning gong.

Catching the Note of Dull Tools

"John Hoyt's ears are remarkable too. He can tell by its sound whether the cutting edge of a tool on a lathe is dull or out of alinement. He can do this not only on his own job, on his own lathe, but when he is walking through a tool room and several lathes are grinding at once. This ability to differentiate between sounds given off by cutting tools is found to a lesser extent in screw machine work, although as a matter of fact, in this case, the terrific and sustained roar of a battery of screw machines is sometimes a little too much for even the best ears.

Hearing the Temper of Metals

"One of the most amazing cases of 'trained ears' found in the factory is Miss Mary Gorman, who has been for years in charge of the girl inspectors in one of the packing departments. In the inspection of screw shells, large cases of the shells are emptied out on the inspection bench, and there is a certain ring or tone accompanying the pouring out of large numbers of these shells. Miss Gorman through many years of practice has become able to determine merely by listening to the jingle of the shells as they roll out of the cases whether there is any accumulation of scrap or defective shells in the batch under examination, and also, more remarkable yet, if there is any variation in the temper of the shells. This is very important, as once in a while a load of shells will slip through without the proper final annealing. She can also readily distinguish between the sound of copper and brass shells.

"This development of acute hearing in industrial plants is not alone interesting. It is also useful and sometimes of very vital importance. When tools are dull, when machines are badly set up, it may mean many dollars' worth of scrap material lost before the situation is noticed and remedied. And there is the element of safety development as well as that of mere cost. Tools out of line, loose belts, broken safety catches may mean lost fingers, mutilated hands. or even life itself. Invaluable assets to any factory are the keen eared leaders of these great mechanical symphonies—always on the job to detect the false note."

Heat of Earth as Source of Power

Utilization of the internal heat of the earth as a source of power is worth undertaking as an international scientific enterprise, said E. W. Rice, jr., honorary chairman of the board of directors of the General Electric Co., at the recent meeting of the World Power Conference in London. "The source of power which we must expect from solar radiation is the power obtained from volcanic regions through holes bored into the earth, as has already been successfully developed in Italy," Mr. Rice said.

"Another possibility exists in the interesting and important suggestion made by Sir Charles Parsons in 1904, and again in 1919, of boring a great hole 10 or 12 miles deep in some convenient and suitable place, to utilize the internal heat of the earth. This suggestion should not be allowed to lie fallow. I heartily agree with Sir Charles in his statement that the cost of such an experiment is trivial compared with the value of the possible information which might be gained by the investigation into this unexplored region of the earth. The cost would be much less than that of a single battleship. If only the people and their representatives had the faith and vision of Science, the value of such an idea would have been put to practical use long ago. It is a big idea, worthy of a nation's enthusiastic support; in fact, it is worth undertaking an as international scientific enterprise—a suitable subject for cooperative work among friendly nations."

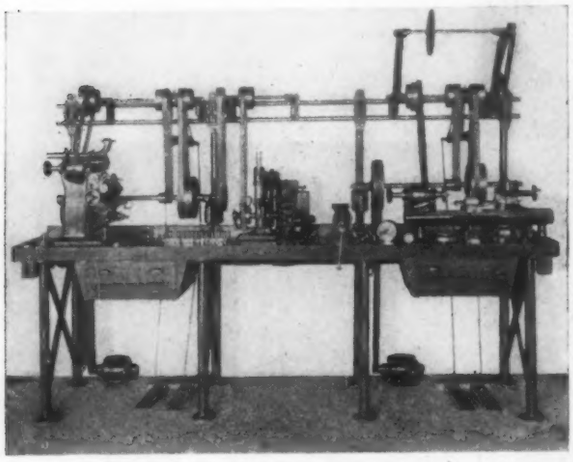
Miss Gorman's inspection of Screw Shells Is More of the Ear Than of the Eye

(Below) Foreman of Screw and Rivet Department and One of His Rivet Machines

(Above) Foreman of Eyelet Department and One of His Machines

Complete Bench Tool Equipment

Bench tool equipment made up of a No. 3 universal bench miller, a No. 3 bench lathe, a No. 0 Sigourney bench drill, a hand vise, and the various attachments which are available with the machines, is being offered by the Pratt & Whitney Co., Hartford. The equipment is mounted on the company's standard bench, and is fully equipped with countershafts and controls as shown in the accompanying illustration. The two motors are of ½ hp., and are arranged so that either



Convenient Arrangement of Bench Machines and Controls Is a Feature

one may be operated independently of the other, permitting one bench machine to be used independently of the others.

The No. 3 universal bench miller, mounted on the bench at the extreme left, was described in detail in THE IRON AGE of July 31. The bench lathe is the company's standard machine equipped with a compound rest. The various attachments which are available with this machine, include grinding attachments, a special milling attachment, a filing attachment, various drill pads, face plates, chucks, etc., as well as complete line of collets. The Sigourney bench drill is equipped with standard drill chucks.

The bench is provided with four drawers as shown, which are considered ample for housing various hand and other tools, and is arranged so that the motor belting and countershafting are entirely out of the way at the rear. The bench lathe and the bench milling machine are controlled by foot pedals which give two speeds to each, and the Sigourney drill has a belt shifter for throwing the belt on and off. The outfit is emphasized as capable of producing almost any kind of machine work within its range of size, the convenient arrangement of parts being also a feature.

Steel Reinforcing Bars to Be Simplified

Because of a large number of varying specifications for steel reinforcing bars used in construction of roads, bridges, and buildings and other structures, proposals for simplification of the varieties of this commodity will be considered at a meeting on Sept. 9 in the Department of Commerce, under the auspices of the division of simplified practice.

Based upon an analysis of experience and sales demand, it has been suggested by representative dealers that the following sizes of steel reinforcing bars be used as a basis for a simplified practice recommendation:

Square: ½-in., 1-in., 1⅛-in. and 1¼-in.

Round: ⅜-in., ½-in., ⅝-in., ¾-in., ⅞-in. and 1-in.

Surveys reported to the division show that many rolling mills, manufacturers, dealers and consuming interests have already adopted these sizes, which can be supplied economically by all producers. It is declared that the range in the recommended sizes would be sufficient to supplant the 15 sizes now used in each style. Endorsement of the recommended sizes will be asked from Government departments and technical bodies, as well as architects, contractors, engineers, bridge and road builders as well as other consuming interests.

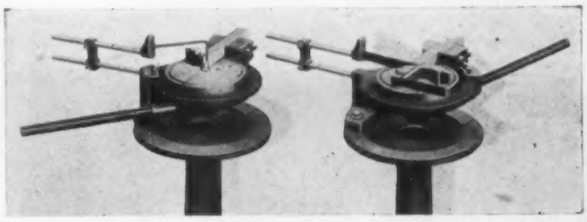
As to the flat shaped bars, no suggestions have been made, but it is expected that existing conditions will be discussed and a survey may result. Suggestions have been received by the Division that an "intermediate" grade, embodying the desirable features of structural and high carbon grades, would enable dealers to cut their stocks from 30 piles to half that number, or even to one-third if one grade were adopted. The question of a future course of action concerning an adequate and sufficient grade of steel will be referred to technical bodies concerned.

Combination Angle and Eye Bending Machine

A new model combination angle and eye bending machine designated as the No. 10 has been placed on the market by the Wallace Supplies Mfg. Co., 1312 Diversey Parkway, Chicago.

The machine is available mounted on a pedestal as shown in the illustrations. A set of tools for bending eyes and another set for making angle bends are provided, as well as one forming pin of any size, additional forming pins being available as extras. The capacity of the machine is for bending square or round wire rod up to 5/16 in., without heating, and 3/16 x 1 in. or less flat stock or equivalent, without heating. The weight of the machine including the stand is 180 lb.

The left-hand illustration shows the dies as arranged for the bending of small rods or flats around a forming pin. This set-up is suitable for the forming of offset or centered eyes, for making hinge-shaped eyes, hooks, "S" and "U" shapes; and also for angle bends of various degrees if a slight radius is wanted at the point of bending. In this set-up the stationary



Hand Operated Bending Machine

back die is held by a clamp on a supporting bracket on the outer edge of the machine and the holder for the grip-dog is located near the outer edge of the rotating table, which permits the use of forming pins as large as 2½ in. in diameter. An eye up to 2½ in. in diameter may be bent on the end of a rod, or a bend having a radius up to 1¼ in. Special tool equipment is available for making larger bends.

The set-up for making sharp right-angle or obtuse-angle bends is shown in the right-hand illustration. In this case the stationary back die is reversed, the tool holder provided with a rectangular die, and in place of the forming pin a front "angle-die" is fastened to the rotating table. With the machine thus equipped bends up to 90 deg. may be made in flats, rounds, or squares, and by means of special dies bends greater than 90 deg. may be made. This die set-up permits of making box bends, offset bends, sharp angle, and "U" bends.

A movable gage is provided at the left-hand side of the machine for gaging stock to be bent, and a movable stop-block clamped to the edge of the machine serves as a gage for the degrees of bend desired. Pulling the handle of the machine moves the rotating table with the dies. The stock is held between the dies on the rotating table, and as they move around the extended end of the stock is forced against the stationary back die.

By the use of special equipment the machine may be adapted for the bending of light flat stock on edge to a radius equal to one-half times the width of the material.

EARNINGS INCREASED

Bureau of Labor Statistics Makes Study of Wages and Hours of Labor

WASHINGTON, Aug. 4.—Large increases in earnings per year in 1924 as compared with 1922 are shown by a study of the Bureau of Labor Statistics, Department of Labor, of wages and hours of labor in 10 departments of the iron and steel industry in the United States early this year. The results of the study are published in the Monthly Labor Review for July.

Figures for the sheet mill department appeared in a June bulletin, while those in the current issue cover blast furnaces, Bessemer converters, open-hearth furnaces and tin plate mills. Particular importance is placed on the survey because in the summer of 1923 a general movement was started to eliminate the 12-hr. turn. The bulletin states that the result of the movement is best seen in the blast furnace department, as from the nature of its process a blast furnace is in continuous operation 24 hr. per day, seven days per week.

Reduction of Hours

It is declared that not over 20 per cent of the employees in the principal productive occupations in 1922 worked less than 72 hr. per week, while approximately the same percentage worked as many as 84 hr. per week and 49 per cent worked 72 hr. In 1924, however, practically two-thirds of the employees worked 56 hr. per week, or less.

At this point the bulletin states:

"The reduction of working time in the open-hearth department is almost as phenomenal as in the blast-furnace department. Few employees in the Bessemer-converting department worked more than 72 hr. per week prior to the summer of 1923, so the decrease in working hours, while considerable, is not so marked as in either the blast-furnace or the open-hearth department. Tin plate mills have for many years been almost entirely on an 8-hr. basis, hence scarcely any change in hours of labor is noticed in that department."

Earnings Increase, Hours Decrease

The bulletin presents tables for the departments, giving index numbers showing relative changes between the various years and 1913, which is the base year, and equals 100. The study covers the period from 1907 to early 1924, and practically all the establishments covered in the survey were scheduled in the half pay-period, Jan. 16-31, inclusive. The increase in earnings per hr. in 1924, as compared with 1922, it was pointed out, was more than enough to compensate for deduced hours, and weekly earnings still show an increase. When the principal productive occupations are considered as a whole, hourly earnings in blast furnaces increased 33 per cent, in open-hearth furnaces 33 per cent, in Bessemer converters 33 per cent, and in tin plate mills 22 per cent. While the 1924 earnings are less than those in 1920, they are still much higher than those of the pre-war period.

Those employed in the principal productive occupations in blast furnaces earned 154 per cent more per hr. in 1924 than in 1913. In other words, earnings per hr. in 1924 were practically two and a half times as much as in 1913. In open-hearth furnaces hourly earnings in 1924 were 169 per cent more than in 1913, in Bessemer converters 127 per cent more, and in tin plate mills 114 per cent.

The following table gives the index numbers of wages and hours in the principal productive occupations combined:

	Blast Furnaces			Bessemer Converters			Open-Hearth Furnaces			Tin-Plate Mills		
Year	Customary Full-Time Hours per Week	Earnings per Hour	Full-Time Weekly Earnings	Customary Full-Time Hours per Week	Earnings per Hour	Full-Time Weekly Earnings	Customary Full-Time Hours per Week	Earnings per Hour	Full-Time Weekly Earnings	Customary Full-Time Hours per Week	Earnings per Hour	Full-Time Weekly Earnings
1907....	103	88	91	102	85	86	...	...	...	...	...	...
1908....	101	85	86	98	79	79	...	...	...	...	...	...
1909....	102	83	85	102	82	84	...	...	...	...	...	...
1910....	102	87	90	103	86	88	99	89	86	98	88	87
1911....	102	89	90	101	82	84	96	89	85	99	98	97
1912....	99	92	90	101	90	90	98	92	91	99	99	98
1913....	100	100	100	100	100	100	100	100	100	100	100	100
1914....	97	101	97	98	90	90	97	100	97	100	102	102
1915....	97	101	97	98	94	94	92	104	96	100	102	101
1917....	98	156	152	98	151	149	99	152	150	...	...	...
1919....	100	250	248	95	208	218	98	239	234	97	220	217
1920....	93	283	258	99	241	254	89	282	253	95	252	252
1922....	93	191	176	98	170	176	93	202	188	94	175	171
1924....	75	254	190	75	227	182	74	269	199	94	214	211

Austin Machinery Corporation Will Enlarge at Muskegon, Mich.

The Austin Machinery Corporation, manufacturer of trench, concrete mixing, road building and mining machinery, has joined the national organizations which are concentrating their manufacturing activities at Muskegon, Mich. The corporation, which maintains industrial plants at Muskegon, at Toledo, Ohio, and at Fairmont, W. Va., immediately will move to Muskegon from Toledo its executive, general sales, and engineering offices. It also will begin the development of plans which will greatly enlarge its production at Muskegon, making the local plant the largest factory of the corporation. Announcement of the change is made by George T. Rosselle, works manager.

The company was formed in 1920 by the consolidation of the F. C. Austin Co. of Winthrop Harbor, Ill., the Linderman Steel & Machine Co. of Muskegon, and the Fairmont Mining Machinery Co. of Fairmont.

Operation of the three plants will continue as in the past. The number of shop employees is to be increased from 200 to 450 by next spring.

George J. Anderson, an official of the Consolidation Coal Co., New York, is president of the company and O. A. Seyferth, formerly connected with the Linderman company at Muskegon, is vice-president and general manager.

A contract has been awarded to the E. H. Latham Co., Columbus, for the construction of a new factory to occupy an entire city block and estimated to cost $300,000 for the Columbus Bolt Works, Columbus.

Improved Demand in Wisconsin

MILWAUKEE, WIS., Aug. 4.—The revival in business now being experienced is a matter of considerable importance to the iron and steel trades. The Milwaukee works of the International Harvester Co., the Milwaukee Hay Tool Co., and other important interests, including some gas engine manufacturers, have been increasing production schedules for the past 30 days, and especially since Aug. 1.

From Racine, Wis., comes the authenticated report that the J. I. Case Threshing Machine Co. is again making large daily shipments of threshers and other machines, both to foreign and domestic markets. It is expected that the improvement in demand will soon make it possible to dispatch trainload shipments to important centers for redistribution. An official statement says: "But before operations become profitable, the farmer will have to obtain returns from this year's crop and liquidate a proportion of his indebtedness."

That the worst slump is over in the Canadian iron and steel industry is the opinion expressed by Harry J. Kelly, general manager of the British Empire Steel Corporation, Sydney, N. S. He gave it as his opinion that the process of centralizing British Empire Steel Corporation production at Sydney will not include the moving of the Trenton plant to Sydney. Business has been somewhat adversely affected by rumors that everything was to be moved to the latter point.

Technical Program for Steel Treaters' Boston Convention

The tentative program for the sixth annual convention of the American Society for Steel Treating, to be held in Boston, Sept. 22 to 26, shows the chief technical sessions will be held in the morning in the ballroom of the Copley-Plaza Hotel, and the exhibition will not be opened until the afternoon of each day, following out the scheme which was successfully inaugurated at Pittsburgh last fall. Afternoon sessions, which are usually brief, will convene in a meeting room on the Commonwealth Pier, where the exhibition is to be held. Details of the program of technical papers follow:

Monday, Sept. 22

MORNING SESSION

Address of Welcome, Mayor James M. Curley of Boston.
Response, President George K. Burgess.
"The Toughness of High-Speed Steel," by M. A. Grossmann, Atlas Steel Co.
"The Study of High-Speed Steel," by H. J. French, Jerome Strauss and T. G. Digges, Bureau of Standards and Washington Navy Yard.
"Hardness, Magnetically," by A. V. deForest, American Chain Co.
"The Law of Depression of Freezing Point as Applied to Metallic Alloys," by Kotaro Honda and Toyato Ishigaki, Imperial University, Japan.
"The Use of Cobalt and Vanadium as Additions to High-Speed Steel," by Dr. W. Certel and Dr. F. Poelzgueter, Germany. (By title.)

AFTERNOON SESSION

Symposium on Salt Baths as Heating Media

"Heat Treatment in Salt Baths," by Major A. E. Bellis, Bellis Heat Treating Company.
"Salt Baths," by Sam Tour, Doehler Die Casting Co.
"Salts for Heating," by W. J. Merten, Westinghouse Electric & Mfg. Co.
Other contributions to be announced later.

Tuesday, Sept. 23

MORNING SESSION

"Density and X-Ray Spectrum of Hardened Ball Steel Drawn at Various Temperatures," by F. L. Wright, Atlas Ball Co.
"The Application of X-Ray Crystal Analysis to Metallurgy," by Dr. W. P. Davey, General Electric Co.
"Spheroidizing Cementite in Large Steel Forgings," by J. Fletcher Harper, Allis Chalmers Mfg. Co.
"High Power Photomicography," by F. F. Lucas, Western Electric Co.
"Shock Tests on Notched Bars," by Dr. Moser, Germany. (By title.)
"A Laboratory Method for the Preparation of Small Steel Bars Differing Only in Carbon Content and the Effect of Changes in Carbide Concentration on the Specific Resistance," by E. D. Campbell, University of Michigan, and G. W. Whitney, American Smelting & Refining Co. (By title.)

AFTERNOON SESSION

Symposium on Heating Media, including Oil, Gas and Electricity

"The Relative 'Over-All' Economic Worth of Electric Heat vs. Fuel for Heat Treating Processes, Has a Floating Value," by E. F. Collins, General Electric Co.
"Oil as a Heating Medium," by J. A. Doyle, W. S. Rockwell Co.
"Gas as a Factor in Improving Quality Standards and Lowering Production Costs of Heat Treated Steel," by H. O. Loebell, Combustion Utilities Co.
Other contributions to be announced later.

Wednesday, Sept. 24

MORNING SESSION

Annual Meeting of the American Society for Steel Treating.
Technical Paper by Dr. John A. Mathews, Crucible Steel Company of America.
"On the Transformations in Pure Iron," by Kotaro Honda, Imperial University, Japan.
"Some Important Items for Obtaining Sharp Melting Respecting Transformation Curves," by Carl Benedicks, K. G. Lund and W. H. Dearden, Stockholm, Sweden. (By title.)
"Granulation Hypothesis and the Delta-Gamma Change in Iron-Carbon and Nickel Alloys," by Col. N. T. Belaiew, London. (By title.)

AFTERNOON SESSION

"The Heat Treatment of Automobile Parts," by J. M. Watson, Hupp Motor Car Co. (Illustrated with a motion picture.)
"The Necessity of Cooperation Between Producer and Consumer of Structural Steels," by Walter Graham, Curtiss Bay Copper and Iron Works.
"Progress in the Manufacture and Use of Clay Refractories," by W. G. Owen, Haws Refractories Co.

Thursday, Sept. 25

MORNING SESSION

"Thermal Transformations During Hardening of Carbon Steels," by H. J. French and O. Z. Klopsch, Bureau of Standards.
"A New Theory of Overstrain and Strength of Materials," by H. P. Troendly and G. O. Pickwell, William D. Gibson Co.
"X-Ray Testing—Foundry Control," by H. H. Lester, Watertown Arsenal.
"Heat Treatment of Carbon Steel Castings," by A. E. White, University of Michigan.
"The Effect of Various Reductions in Forging upon the Physical Properties of Steel," by D. J. McAdam, Jr., U. S. Naval Experimental Station, Annapolis.
"Influence of Texture on the Manufacture and Treatment of Different Steels, Especially on High Speed Steel," by Dr. Franz Rapatz, Germany. (By title.)

AFTERNOON SESSION

Hardness Testing Symposium

"Rockwell and Brinell Hardness," by S. C. Spalding, Halcomb Steel Co.
"The Ball Indentation Hardness Test," by S. L. Hoyt, General Electric Co.
Other contributions to be announced later.

Friday, Sept. 26

MORNING SESSION

"Stainless Iron and Steel," by T. Holland Nelson, United Alloy Steel Corporation.
"Stainless Steel and Stainless Iron," by O. K. Parmiter, Firth Sterling Steel Co.
"Tensile Properties of Some Steel Wire at Liquid Air Temperatures," by W. P. Sykes, National Lamp Works of the General Electric Co.
"Macroscopic Examination of Steel," by V. O. Homerberg, Massachusetts Institute of Technology.
"Grain Boundaries in Steel," by Cecil H. Desch, England. (By title.)

AFTERNOON SESSION

Symposium on Metallurgical Education

"Metallurgical Education," by Bradley Stoughton, Lehigh University.
"On Metallurgical Education," by S. L. Hoyt, General Electric Co.
Other contributions to be announced later.

Steel Treaters' Exhibition in Boston

Officials of the American Society for Steel Treating state that about 150,000 sq. ft. of space will be necessary to accommodate all exhibitors desiring to show their products at the sixth annual convention to be held in Boston, Sept. 22 to 26. This compares with 79,000 sq. ft. which were used at the convention held in Pittsburgh last October. An interesting feature this year is that there will be an exhibit of machine tools and machine manufacturers, who are reported to have an entire section approximating 25,000 sq. ft. devoted exclusively to machine tools in operation.

Industrial Conference on Human Relations

A conference on human relations in industry will be held at Silver Bay on Lake George, New York, Aug. 28 to 31, inclusive, under the auspices of the industrial department of the international committee of the Young Men's Christian Associations. It is the seventh annual industrial conference and will be under the chairmanship of J. Parke Channing, Miami Copper Co., New York. The program includes in part the following:

"Today's Challenge to Industrial Leadership," by John E. Edgerton, president National Association of Manufacturers.
"Factors Which Measure the Success of Employees Representation," by Arthur H. Young, Curtis Fosdick & Belknap, New York.
"New Policies for Modern Conditions," by William H. Johnston, president International Association of Machinists.
"Industrial Relations in Management," by J. M. Larkin, assistant to president, Bethlehem Steel Co., Bethlehem, Pa.
"Youth—The Beginning of Right Relations," by Charles R. Hook, vice president and general manager American Rolling Mill Co., Middletown, Ohio.
"Unemployment—The Bulwark of Industrial Unrest," by Whiting Williams, Cleveland.

Ohio Foundrymen to Meet at Cleveland

The Ohio State Foundrymen's association will hold its fourth annual convention at the Hotel Cleveland, Cleveland, Sept. 18 and 19. Among the speakers will be Walter Gordon Merritt, counsel for the League for Industrial Rights, New York. The members will be the guests one forenoon of the National Lamp Division of the General Electric Co. at its plant at Nela Park.

The Washington office of the American Association of Engineers has been re-established. It was opened July 15 at 712 Investment Building, Fifteenth and K Streets, in charge of A. B. McDaniel.

BRITISH FOREIGN TRADE

May Steel Imports Largest on Record—Exports Largest This Year

The largest importation of iron and steel in the history of the British steel industry featured the May figures. The total of 415,115 gross tons has never been equalled. It compares with 243,008 tons in April, the year's largest up to that time. The average in 1913 was only 195,264 tons per month.

Exports in May were 359,557 tons; also the largest this year, but exceed April by only a small margin. The May movement was less than the monthly average for 1923.

Comparative data for both exports and imports, scrap included, are as follows:

British Steel Exports and Imports, Gross Tons

	Exports	Imports
January, 1924	345,455	182,611
February	341,511	223,102
March	299,691	212,518
April	341,292	243,008
May	359,557	415,115
Average per month, 1923	369,800	127,800
Average per month, 1922	295,980	82,215
Average per month, 1921	144,885	152,734
Average per month, 1920	274,881	128,685
Average per month, 1919	188,519	50,801
Average per month, 1913	420,757	195,264

More detailed data of the exports are as follows:

Principal British Exports, Gross Tons per Month

	1913	1923	May 1923	May 1924
Pig iron } Ferralloys }	93,700	74,100	81,215 11,680	75,749 10,548
Steel rails	42,200	25,700	19,646	21,670
Steel plates	11,200	17,700	17,847	17,222
Galvanized sheets	63,500	53,800	52,911	66,018
Steel bars, rods, etc	20,900	31,500	32,965	24,554
Tin plates	41,200	48,300	54,059	60,480
Black plates and sheets	11,700	29,500	38,372	28,021

Exports of scrap iron and steel in May were 8196 tons, compared with 9815 tons per month in 1923 and with 12,880 tons per month in 1922. In 1913 they were 9600 tons per month.

Data as to importations of importance are as follows in tons per month:

	1913	1923	May, 1924
Iron ore	620,000	487,580	679,340
Manganese ore	50,100	43,420	40,784
Pig iron and ferroalloys	18,000	9,157	39,437

Imports of semi-finished steel to June were 451,308 tons, compared with 231,767 tons for the same five months in 1923. Of this year's total 221,871, or nearly half, came from Belgium.

Safety and Welfare Work of Steel Corporation Shown Pictorially

The safety, sanitation and welfare work of the United States Steel Corporation is shown pictorially in a booklet of 65 pages, designated as bulletin No. 10 and recently issued by the corporation. More than 400 photographic reproductions of safety meetings, hospitals, plant restaurants, clubs, housekeeping centers, gardens, schools and classrooms, playgrounds, employees' houses and many other welfare activities are included in the booklet, which is perhaps even more interesting than those issued previously.

The welfare, safety and sanitation activities are conducted through a central department in New York headed by C. L. Close and various committees composed of representatives of the larger subsidiary companies. The extensiveness and thoroughness of these activities, as portrayed by the bulletin, are impressive.

It is shown that the welfare expenditures of the corporation from Jan. 1, 1912, to Dec. 31, 1923 amounted to $126,885,911, which was divided among playgrounds, schools, clubs, gardens, visiting nurses, etc.; sanitation; accident prevention; relief of injured men and the families of men killed; employees' stock subscription plan; pension fund payments in excess of income provided by the permanent fund, and for the creation of a permanent pension fund. In addition the total pension payments to employees in the period under review amounted to $9,261,771, and additional benefit payments and administration cost amounted to $326,861, these items not being included in the original total of $126,885,911.

A classification of 284,494 accidents as to the cause reveals that 43.7 per cent of the total were contributed by hand labor, 15.7 per cent in the mines, 8.3 per cent through falls, 6.9 per cent through burns, 5.2 per cent because of eyes, 4.9 per cent by machinery, 4.3 per cent on the railroads, and 10.9 per cent through all other causes. Hand labor as causing nearly half of all accidents is significant, because a majority of these cannot be controlled by the use of safety devices or appliances.

Since 1906, 39,374 employees were saved from serious or fatal injury, and fatal and disabling accidents were reduced by 70 per cent in the past 11 years.

Among several excellent records for continuous work, given in the bulletin, the cold drawn department of the National Tube Co. at Ellwood City which operated four years and three days without a man having a full day off because of an accident, may be mentioned. The Joliet Works, employing 3800 men, went 95 days without a serious accident. Other statistics also reflect meritorious work for the welfare of the employees.

British Cast Iron Research Association Laboratories

A further stage in the development of the Cast Iron Research Association was reached recently when the association formally took possession of its own laboratories. These are situated in Guidford Street, Birmingham, and are equipped for the conduct of chemical analyses and general metallurgical and heat treatment work. The capacity of the association to deal with its work will be greatly increased, but it is not intended to abandon the policy of having investigations conducted in prominent university laboratories and in the works of members.

It is anticipated that the association, which commenced a new financial year on July 1, will incur an expenditure during the year of between £6,000 and £7,000. The research program includes important investigations on erosion and corrosion-resisting cast irons; molding sands; graphitization; heat-resisting cast iron; the production of malleable cast iron; cupola practice; cast irons for electrical and magnetic purposes; measurement of melting and pouring temperatures; the fundamental properties of cast iron; standardization of test bars, materials and methods; facing sands and blackings, and cast iron to resist abrasive wear, and jointly with the British Motor and Allied Manufacturers Research Association, automobile cylinders and pistons.

Mexican Blast Furnace Blown In

The blast furnace of the Compania Fundidora de Fierro y Acero de Monterrey, S. A. (Monterrey Iron & Steel Co.), Monterrey, Mexico, was blown in on July 22. Also the operations of the steel plant and rolling mills were increased.

Production of charcoal in southern Ohio, long since discontinued, has been resumed at the shops of the Detroit, Toledo & Ironton Railroad, owned by Henry Ford. The charcoal is being made from old ties removed from the railroad tracks, and will be shipped to the Ford plants at Detroit for filtering and other purposes. W. H. Buckley, Wellston, Ohio, son of Samuel Buckley, who half a century ago was one of the experts in the art in the Hanging Rock district, is in charge of operations, which are being carried on exactly as in the old days when charcoal furnaces abounded in the region.

"Development of a Method for Measurement of Internal Stress in Brass Tubing" is the title of technological paper No. 257 of the Bureau of Standards. The authors are Robert J. Anderson and Everett G. Fahlman, superintendent National Smelting Co., Cleveland.

AMERICAN MACHINERY TRADE

Exports and Imports in June and in the Fiscal Year of Machine Tools and Other Machinery

WASHINGTON, July 28.—Exports of machinery from the United States in June of this year were valued at $25,899,921, as against $29,167,698 in May. For the fiscal year ended with June, 1924, they were valued at $316,073,620, compared with $256,333,541 for the fiscal year 1923.

Imports of machinery in June were valued at $677,029, as against $836,739 in May, the latter total being corrected, due to the total of agricultural machinery imports having been revalued at $270,196 instead of $72,753. Machinery imports for the fiscal year were valued at $9,214,861, as against $10,302,384 for the fiscal year 1923.

Exports of metal-working machinery in June numbered 3763, and were valued at $671,932, as against 3299, valued at $615,482 in May.

Machinery Exports from the United States
(By Value)

	June, 1923	June, 1924	Twelve Months Ended June, 1923	Twelve Months Ended June, 1924
Locomotives	$358,963	$546,626	$5,307,075	$4,188,236
Other Steam Engines	3,550	70,073	1,092,110	493,591
Boilers	71,400	160,073	1,213,438	1,898,112
Accessories and Parts	268,296	371,065	3,438,680	4,191,122
Automobile Engines	433,432	240,543	5,356,866	4,084,661
Other Internal Combustion Engines	899,527	542,984	3,742,445	6,877,962
Accessories and Parts for	337,963	295,123	3,013,225	3,689,376
Electric Locomotives	149,065	477,694	2,968,348	2,400,644
Other Electric Machinery and Apparatus	613,208	600,063	6,941,472	8,972,947
Excavating Machinery	85,798	266,705	1,441,367	1,900,994
Concrete Mixers	46,628	60,641	578,412	614,568
Road Making Machinery	85,458	135,465	625,941	1,181,744
Elevators and Elevator Machinery	345,713	114,082	4,555,775	2,073,192
Mining and Quarrying Machinery	979,837	755,358	7,999,716	10,880,033
Oil Well Machinery	451,946	534,553	4,844,141	7,038,842
Pumps	744,293	559,680	6,834,209	7,550,957
Lathes	96,385	94,133	738,667	1,250,482
Boring and Drilling Machines	44,710	34,018	592,377	650,195
Planers, Shapers and Slotters	26,855	27,364	245,993	277,524
Bending and Power Presses	10,703	24,192	170,882	432,769
Gear Cutters	9,971	33,438	152,783	370,587
Milling Machines	34,830	70,028	442,159	456,640
Thread Cutting and Screw Machines	36,384	30,500	365,773	605,560
Punching and Shearing Machines	14,890	4,956	138,590	127,182
Power Hammers	7,158	26,342	137,304	191,385
Rolling Machines	24,504	10,238	148,590	112,605
Sharpening and Grinding Machines	72,034	238,488	916,949	1,376,200
Other Metal Working Machinery and Parts of	370,627	462,682	5,420,874	4,530,110
Textile Machinery	820,648	723,477	9,648,832	8,698,894
Sewing Machines	828,927	648,034	8,431,877	10,110,609
Shoe Machinery	215,944	124,326	1,317,748	1,276,815
Flour-Mill and Gristmill Machinery	84,617	65,441	1,056,590	1,104,199
Sugar-mill Machinery	267,535	391,505	3,711,807	6,610,001
Paper and Pulp Mill Machinery	147,194	131,985	1,990,852	1,893,575
Sawmill Machinery	23,406	63,786	556,383	622,051
Other Woodworking Machinery	88,493	87,205	1,422,044	1,274,921
Refrigerating and Ice Making Machinery	172,849	16,889	2,047,170	1,237,900
Air Compressors	187,005	207,771	2,456,324	2,954,817
Typewriters	1,275,471	1,105,487	12,873,512	14,401,018
Power Laundry Machinery	81,661	23,895	957,267	169,283
Typesetting Machines	233,729	321,391	3,527,947	4,038,253
Printing Presses	373,961	308,078	4,232,797	4,834,295
Agricultural Machinery and Implements	4,202,292	4,722,579	37,378,458	60,904,888
All Other Machinery and Parts	7,871,927	10,070,965	95,299,772	117,523,881
Total	$23,599,787	$25,899,921	$256,333,541	$316,073,620

Imports of Machinery Into the United States
(By Value)

Metal-working machine tools and parts	June, 1923	June, 1924	Twelve Months Ended June 1923	Twelve Months Ended June 1924
	$16,814	$47,187	$357,307	$409,297
Agricultural machinery and implements	295,426	201,743	2,808,714	2,508,356
Electrical machinery and apparatus	20,584	22,952	400,958	398,535
Other power generating machinery	45,755	2,307	1,901,514	*80,578
Other machinery	200,104	278,158	2,526,744	3,449,887
Vehicles except agricultural	333,591	124,682	2,307,147	2,368,208
Total	$912,274	$677,029	$10,302,384	$9,214,861

* Beginning Jan. 1, 1924.

Metal-Working Machinery Exports

	May, 1924 Number	May, 1924 Value	June, 1924 Number	June, 1924 Value
Lathes	47	$78,171	72	$49,133
Boring and drilling machines	196	62,879	187	34,018
Planers, shapers and slotters	27	29,303	21	27,364
Bending and power presses	21	46,571	38	24,192
Gear cutters	47	19,288	24	33,438
Milling machines	21	25,676	62	70,028
Thread-cutting and screw machines	32	29,759	41	30,500
Punching and shearing machines	13	3,171	12	4,956
Power hammers	31	16,950	16	26,342
Rolling machines	..	.....	2	10,238
*Sharpening and grinding machines	245	161,921	271	238,488
Chucks, center, lathe, drill and other metal-working tools	1,220	23,406	1,680	27,531
Pneumatic portable tools	1,399	118,387	1,337	95,704
Total	3,299	$615,482	3,763	$671,932

* Includes number of external and internal grinding machines only; "other sharpening and grinding machines" are now reported by weight instead of by number.

Steel Plant Expansions Imminent

PITTSBURGH, Aug. 4.—If present plans of steel companies in connection with plant betterments move from the blueprint stage, a period of good business is ahead for the builders of rolling mill and power equipment. There is good reason to believe that the modernization of the Johnstown, Pa., plant of the Bethlehem Steel Co. will go ahead and that the company will continue such efforts already in progress at its Lackawanna plant. A new power house; electrification of a number of mills as well as some changes in the coking facilities are listed among the improvements at Johnstown, while at Lackawanna there is nearing completion an extension of the by-product coke plant and the installation of an electrically-driven 44-in. blooming mill, while increased ingot production is being figured on at that plant through the building of new open hearth furnaces and enlargement of existing ones.

The Jones & Laughlin Steel Corporation is understood to be getting prices on a 44-in. electrically driven blooming mill for its Pittsburgh works and to have other plans pointing toward the modernization of that plant.

The United States Steel Corporation subsidiaries, notably the Carnegie Steel Co., are moving a little more rapidly than are the independents toward plant betterments. Beside the plans for Homestead, which contemplate expenditures over the next few years of about $23,000,000 that company is well along with betterments at its Mingo, Ohio, plant, where equipment is being installed for the handling of river shipments of coke for the blast furnace from the company's Clairton by-product plant. A new boiler house is practically completed and two 2500-hp. steam turbines are to be installed to provide electric power.

Small skelp mills contracts for the new Gary tube mills of the National Tube Co. are expected to be placed soon.

Expanding Operations at Steelton, Pa.

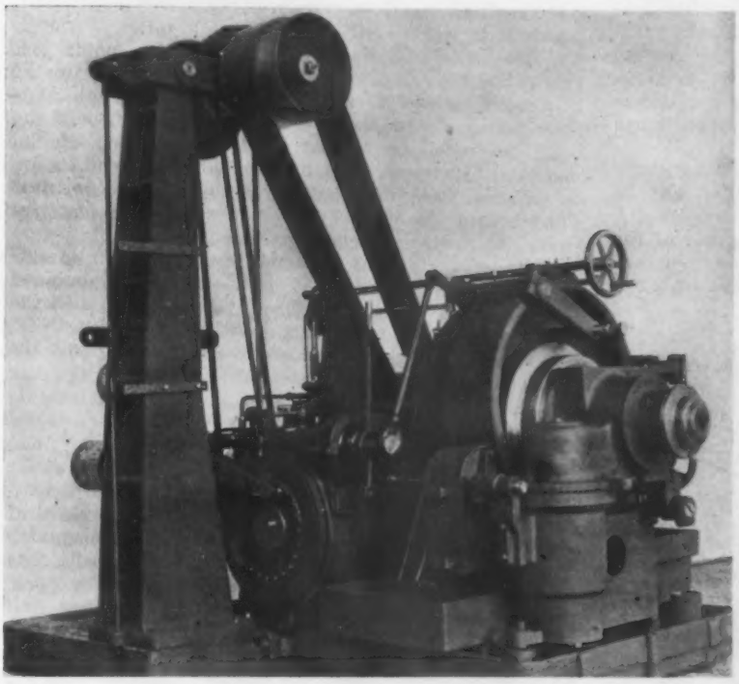
STEELTON, PA., Aug. 2.—The rail mill of the Steelton, Pa., plant of the Bethlehem Steel Co. was scheduled to resume operations on Aug. 5. This mill, which has been closed for a month, will first work on orders for girders and high T-rails. The mill will operate day turn only for the present.

Two additional blast furnaces of the plant, officials have announced, will resume operations within two weeks, as the result of increased orders for rails.

AUTOMATIC ROTARY GRINDER

Self-Contained Machine for Bulky Castings of Thin Section—Coolant Circulation a Feature

Williams, White & Co., Moline, Illinois, are placing on the market a No. 3 Osterholm automatic rotary surface grinder for grinding bulky castings of thin section, examples of which in the automotive field include transmission case covers, timing gear case covers and bell housings. The machine has been designed so that except for loading and unloading, the operation is automatic, and it may be used on castings up to 24-in. in diameter and 10-in. in height.



Automatic Surface Grinder for Thin Castings up to 24 In. in Diameter and 10 In. in Height. The close-up view above shows a gear case cover mounted in the work-carrying spindle. After clamping the work the spindle housing is swung into the operating position, and the housing locked by a mechanism similar to the breech block used on field guns

Many of the features of the company's plain Osterholm automatic surface grinder and the duplex rotary grinder, which have been previously described, are included in the new machine. Compactness is a general feature of the machine, as is also the arrangement of the motor base and the columns supporting the countershaft, which makes the unit self-contained. The water supply is contained in a large cast-iron pan in which the machine is mounted and coolant is circulated continuously by means of a pump which is driven by belt from the countershaft.

In the accompanying close-up illustration the work-carrying spindle is shown swung back on a vertical axis to the loading position, which is perpendicular to the face of the wheel. A timing gear case cover is clamped in position in the fixture, as shown. After clamping the work in position the work-carrying spindle housing is swung into the operating position, whereupon the housing is locked by a mechanism similar to the breech block used on large field guns. The cycle of automatic operations is then begun by the engagement of a single lever. The work-carrying spindle is rotated, the feed of the wheel toward the work is applied and the coolant flows automatically through piping in the abrasive wheel spindle. When the required amount of stock has been removed, the feed ceases automatically and the work head comes to a stop. The work-carrying spindle is unlocked and returned to the loading position by a single pull by the operator.

The work-carrying spindle is supported on thrust and annular ball bearings. Spring buffers are provided at each end of the work-spindle housing so that the weight of the spindle is cushioned at both ends of its rotation. Steel buttons assure alinement of the work spindle with the grinding wheel when the housing is locked in the operating position. Change gears at the left-hand side of the machine permit of varying the speed of the workhead to suit the requirement of the castings being ground. The driving mechanism for the work spindle is entirely inclosed and flooded with oil. The cylinder wheel is 20-in. in outside diameter and is mounted in the wheel chuck. The spindle, which is hollow, is driven at 900 to 1000 r.p.m., and the maximum power required is 30 hp. Thrust of the wheel is taken on a ball thrust bearing and means has been provided for adjusting the endwise play of the spindle.

The spindle head is mounted on a slide and is adjusted by means of a screw and hand wheel, this adjustment being used in production work merely to locate the wheel and for compensating wheel wear. The outboard end of the adjusting screw is threaded into the pedestal operated by a single-tooth rack, which in turn is actuated, by a feed cam to give the power feed. The sector that advances the rack is mounted on the cross shaft at the back of the machine, this cross shaft carrying a large cam lever equipped with an intermediate cushioning spring.

A roller at the long end of the cam lever engages with the feed cam which draws the wheel back 3/16 in. during loading then brings it up into working position and finally establishes a constant rate of feed through any predetermined distance to the finished position. When the finished position is reached, the roller follower rides up the advance side of the cam peak, causing the feed lever to contact with a trip lever which shifts the feed belt to a loose pulley, thereby stopping the rotation of the work-carrying spindle. This belt drives a pulley which is located on one end of the worm shaft. At the opposite or forward end of this worm shaft is located a set of change gears which transmits a drive to the worm shaft of the worm and gear combination that drives the feed cam shaft. An emergency jaw clutch is installed on the feed worm shaft, being operated by hand lever. When this lever is disengaged, the work-carrying spindle continues to rotate but the wheel head ceases to advance. Varying rates of feed may be obtained by interchanging cams, although the manufacturer has devised an adjustable spiral cam for the same purpose.

The contour of the feed cam controls the depth

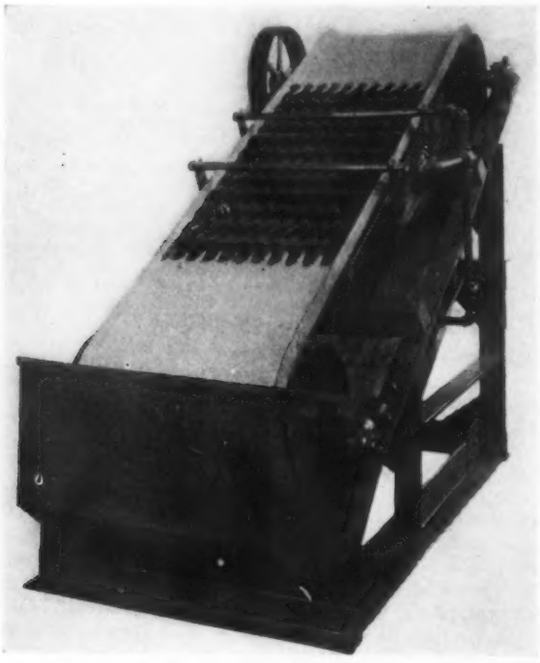
of cut for a given operation; the time for a cycle of operations is determined by the ratio of the change gear set. The combinations which have been adopted permit a range of actual working time that varies from 10 sec. for small work to 2 min. for heavier operations. Because of the relative lengths or ratio of the feed cam roller lever arm, it is said that profiling of the feed cam is a comparatively simple operation and need not be held to micrometric limits. As the reduction is great, a reasonable degree of accuracy at the profile of the feed cam produces very close results at the feed rack.

The method of coolant control and circulation is a feature of the machine. A tube through the hollow wheel spindle directs the coolant against a deflector mounted just inside the cup wheel. This deflector serves to direct the coolant into the inside of the abrasive wheel, from which point it cascades across the entire cutting surface. During the loading of the machine the coolant stream is diverted automatically.

New Iron Ore Concentrator

A new separator designed to handle magnetite iron ore and similar materials in large quantities, the principal feature of which is the construction of the magnet employed, has been placed on the market by the Magnetic Mfg. Co., Milwaukee. The machine, which is designated as the type MW, has been built for the South Manchurian Railway.

In the accompanying illustration the magnet is shown in action and the lines of the magnet may be traced by the position of the fine iron particles. A considerable burden of iron is held by the power of the magnet against the surface of the vanner-edged conveyor belt. The material is fed upon the belt either in



Iron Ore Concentrator. Material is fed upon the conveyor belt above lower spray pipe. The magnetite is held against surface of belt by the magnets, the belt moving slowly upward and the water downward

the dry or wet state, preferably wet, striking the belt just above the lower spray pipe. The spray pipes are arranged to provide sufficient water thoroughly to wash the material. As the material is fed upon the conveyor-belt it immediately comes under the influence of the magnet, which is located directly under the belt. The magnetite is held against the surface of the belt and moves slowly upward, while the water flows downward.

The iron in passing from pole to pole of the magnet turns over, which permits the water to flow through freely. The particles of iron also move sideways on the conveyor belt, first in one direction and then in another, imparting, it is said, a gigging action to the ore. The magnetic material as it moves with the belt in the upward direction is thus agitated many times in different directions, and turns over a number of times in passing the poles of the magnet, thus permitting the water to wash the material thoroughly before it passes out of the magnetic field. In order to effect an automatic discharge of the magnetic material the magnet has been designed so as to allow the magnetic material to move gradually out of the magnetic field, and as it moves out of this field it mats to the surface of the conveyor-belt until it reaches the discharge point, where it is washed off by means of a spray of water. The magnetic material is discharged at a point just below the lower surface of the pulley at the top of the machine into a receiving hopper. The non-magnetic material is washed off at the lower surface of the belt into receiving hopper at the lower end of the machine. Materials ranging in size from about ¼ in. to extreme fines may be treated by the concentrator illustrated. To obtain the best results the material should be properly sized before treatment.

The separators are wound to operate on direct-current voltages up to 250 volts. They are equipped with a switch panel mounted on the machine with the necessary control apparatus, so that the strength of the magnet may be increased or decreased to suit the conditions and to effect proper separation.

Lake Ore Movement in July

Lake Superior iron ore shipments from the upper lake ports in July were 7,280,014 gross tons, or 3,131,234 tons less than those for July, 1923, a decrease of 30.07 per cent. The total of this season's shipments to Aug. 1 was 22,107,142 tons, which compares with 26,596,731 tons to Aug. 1, 1923. The shipments by ports and for the season in 1923 and 1924 are as follows:

	July, 1923	July, 1924	To Aug. 1 1923	To Aug. 1 1924
Escanaba	1,123,048	535,332	3,119,695	1,742,062
Marquette	534,024	452,481	1,335,973	1,109,644
Ashland	1,184,462	838,221	3,067,616	2,677,188
Superior	3,013,851	2,567,467	7,648,581	7,372,109
Duluth	3,450,915	2,125,241	8,324,974	6,613,535
Two Harbors	1,104,948	761,272	3,099,892	2,592,604
Totals	10,411,248	7,280,014	26,596,731	22,107,042
Decrease, 1924		3,131,234		4,489,589

The decrease to Aug. 1, this year, in the season shipments was 4,489,589 tons, or 16.88 per cent as compared with last year. Duluth contributed 29.92 per cent of the total against 31.30 per cent a year ago. Great Northern's percentage this year was 30.82 per cent of the total against 25.54 per cent last year, a considerable gain. Escanaba's operations decreased from 8.22 per cent last year to 5.18 per cent this year, while Ashland's increased slightly, or from 9.15 per cent to 9.22 per cent.

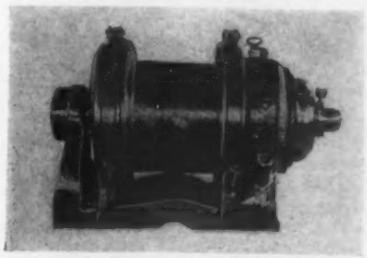
Indianapolis to Hold Industrial Exposition

Indianapolis will hold an industrial exposition October 4 to 11. It will be the second undertaken by the industries of the city. Like the first, which was held in the fall of 1921, it is part of a plan of the Indianapolis Chamber of Commerce for community advertising and development. The city's total separate manufacturing concerns number slightly over 1000 and produce 1200 distinct articles, notably automobiles and automobile accessories. O. B. Iles, International Machine Tool Corporation, Indianapolis, is chairman of the executive committee of the Indianapolis Chamber of Commerce.

Steel barrels made by 29 manufacturers in June are reported by the Department of Commerce at 385,158, compared with 418,381 (revised) for May and 416,628 for April. Unfilled orders at the end of the month were for 421,870 barrels, the lowest of the year. At the end of May the unfilled orders were for 582,022 barrels.

New Electric Drum Hoist for Portable Use

A 6½ hp. electric portable single drum hoist for use on construction jobs, in yards and in mines has been aded to the line of the Sullivan Machinery Co., 80 East Adams Street, Chicago. Features include compactness and light-weight, the weight being only 480 lb. or 74 lb. per hp.



The hoist may be mounted on a cross bar or column in a shaft, winze or raise, and employed in handling drills, steel or timbers. It may be bolted to a timber, girder, tree or to a wall or floor, for pulling cars, piling lumber, and other odd jobs of hoisting or hauling. Its capacity is 2000 lb. dead load lifted vertically at 110 ft. per min.

The electric motor is supported in one end of the frame or base of the hoist and supplies power through speed reduction gears to the hoisting drum which is 11⅛ in. in diameter by 8¼ in. in length. The drum holds 500 ft. of 5/16-in. wire rope and the relatively large drum diameter is intended to minimize strain and wear on the hoisting rope. The drum and the reduction gears revolve on ball or roller bearings. The gears are cut from alloy steel and heat treated. Electric steel castings and drop forgings are employed for the various parts of the machine.

The 6½ hp., 230-volt direct-current motor employed is of Westinghouse Electric & Mfg. Co. manufacture and draws about 25 amp. when running the hoist at full capacity. It is a compound wound motor with its series winding 32½ per cent of total. It has a no load speed of 3000 r.p.m. and runs about 2350 r.p.m. at full load. It is totally inclosed so that no dust or dirt can enter and has a temperature rating of 10 min. full load with a 55 deg. C. rise, while it will run no load continuously without overheating. The armature revolves on ball bearings which are lubricated by the same splash system in the drums that lubricates the reduction gears and their bearings. The motor heads are designed to prevent leakage of oil into the motor and pipe plugs are provided in one motor head for the inspection of the brushes. The brush holders are not attached to the motor head but are on a separate rocker ring casting, so they are easy to adjust and the motor heads may be removed without disturbing the wiring to the brushes.

A damp proof electric plug and receptacle with 10 ft. of heavy rubber covered cable are furnished to connect the hoist with the starting box. The latter, which may be hung on a spike in a mine prop, is provided with a fuse block and two 30-amp. fuses. The whole outfit is light and portable and can be disconnected conveniently from the hoist.

The hoist is available also in the double drum type for drag-line scraper work.

Offers New Line of Paper Pulleys

The Best Pulley Mfg. Co., St. Louis, has placed on the market a new line of paper pulleys, which are available in 2500 stock sizes. They are made of a specially treated paper fiber, hydraulically compressed into a solid block. The end grain of the fiber is exposed to the belt and the pulley is claimed to grip without slippage.

A feature emphasized is a new double locking hub which has three sets of two ribs each which grip into the paper and prevent the hub from coming loose, even though the pulley may be reversed in direction. These ribs are a part of the hub and extend from it in V-shape so that when the hub is hydraulically pressed into the pulley it becomes an integral part of the pulley itself. The pulleys are carefully balanced and tested before shipment.

Effect of Ultra-Violet Rays on Polished Metal Surfaces

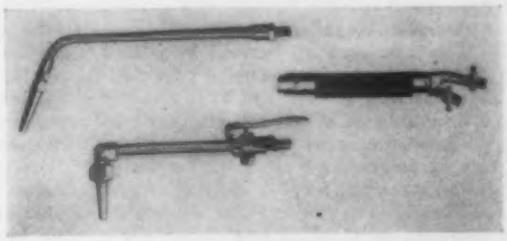
The study of the effect of ultra-violet rays on metals has been carried somewhat further by the Bureau of Standards during the past month with the idea of using a method of this kind as a possible means for corrosion testing. Briefly the phenomenon as observed is as follows: If the ultra-violet rays are shielded from most of the surface of the polished specimen by means of a thin metal sheet and allowed to play upon a small area, a pronounced change results in the exposed area.

Specimens of Armco iron, medium carbon steel, "stainless," and high nickel steels were exposed for 18 hr. to the rays. When the specimen is cooled and the moisture of the breath allowed to condense on the surface, the exposed area becomes visible at once. The moisture condenses on this area in a different way from the unexposed parts. The drops of condensation are larger, and the surface looks as though a thin film of oil or similar substance had been spread over it so that it is not wetted so easily as the rest of the surface. In the case of the medium carbon steel, very noticeable corrosion of the exposed spot occurred after four condensations of moisture, while the remainder of the surface was hardly attacked. Chromium and nickel steels did not show any corrosion, although the same difference between exposed and unexposed areas was noticed.

From the above it is evident that the action of the ultra-violet rays plays a part in the surface change of metals.

Cutting Head for Welding Torch

A cutting head for use with its model D-2 welding torch has been placed upon the market by the Weldit Acetylene Co., Detroit. In using the cutting head the welder removes the extension and mixing chamber from the welding torch, and by screwing the head to



Cutting Head for Use with Welding Torch

the handle, provides himself with a torch for miscellaneous cutting.

The tips provided are of one-piece copper construction with three preheaters. The high-pressure lever is located directly over the handle, as shown in the illustration, and is within easy reach. In operating the cutting head the oxygen valve is turned wide open as the automatic control prevents the preheater from oxidizing when the high-pressure valve is opened. The range of work with tip No. 1 is acetylene pressure, 5 lb., oxygen pressure, 35 lb., 1½ in. With tip No. 2, the acetylene pressure is 7 lb. and the oxygen pressure 60 lb., 3 in.

More Cars in Need of Repairs

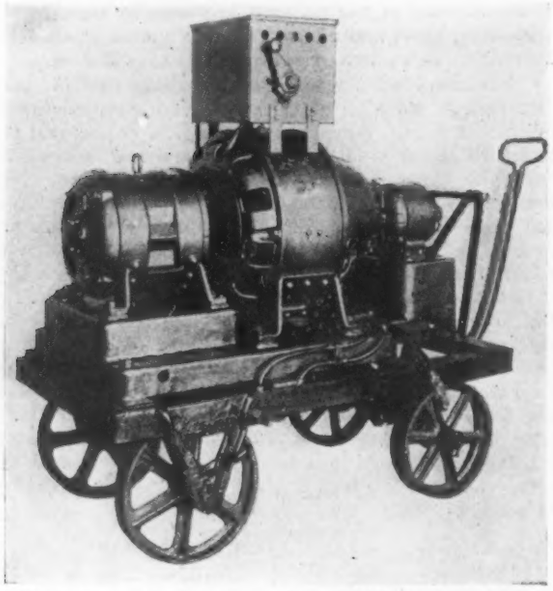
Freight cars in need of repair on July 15 totaled 200,152 or 8.8 per cent of the number on line, according to reports filed by the carriers with the Car Service Division of the American Railway Association. This was an increase of 5283 over the number reported on July 1, at which time there were 194,869 or 8.5 per cent.

Of the total number, freight cars in need of heavy repair totaled 151,228 or 6.7 per cent, an increase of 6316 compared with the number on July 1. Reports showed 48,924 or 2.1 per cent in need of light repair, a decrease since July 1 of 1033.

Single-Operated Arc Welding Apparatus

The Westinghouse Electric & Mfg. Co., East Pittsburgh, has placed on the market the single-operated 200 amp. arc welding apparatus illustrated, which may be equipped for either stationary or portable use. Compact and self-contained construction and ability to withstand rough usage are features emphasized.

The generator is designed to deliver 300 amp. on



Single-Operated 200-Amp. Arc Welding Apparatus Equipped for Portable Use. Self-contained and rugged construction are features

intermittent work. Welding current from 60 to 300 amp. may be obtained by operating the rheostat handle which is conveniently located outside the control cabinet which is mounted on top of the generator. The 61 rheostat resistance steps permit of close current control. If extremely high current is desired, the generators of several machines may be operated in parallel.

The generator is designed to inherently stabilize the arc, overcoming resistance fluctuations in the arc circuit, and, at the same time, eliminating the necessity for relays, solenoid or controlled resistors. The special design of the generator is said to permit the operator readily striking and maintaining the arc, obtaining the necessary penetration and fusion for good welding. Metallic electrodes from 1/16 to ¼ in. in diameter may be used. The generator and driving motor are mounted on a common shaft to which the exciter is coupled by means of a flexible coupling. Ball bearings are used throughout to eliminate the leakage of oil when operated on inclined positions.

The driving motor is of the company's standard design, the direct-current motor being the type SK. For alternating current the company's type CS squirrel cage motor is employed. Alternating current driving motors may be used on 220 and 440 volt supply circuits by simply rearranging the lead connections. Alternating-current motors are started by connecting them directly to the line through a safety switch, the direct-current motors being started by means of a type D starting rheostat. In both cases, all the operating mechanism except the handle is within the control cabinet.

The Dayton Sewing Machine Co., Dayton, Ohio, recently organized by second mortgage bondholders of the Davis Sewing Machine Co., has taken over all the assets of the Davis company upon the payment of $60,000 to the receiver and $5,000 to the general creditors of the organization. This action was ordered by Federal Judge Sater in the United States District Court. At the same time Judge Sater ordered the receiver to pay a 10 per cent dividend to all general creditors, the funds remaining to be turned over to the Dayton Sewing Machine Co., to be held in trust.

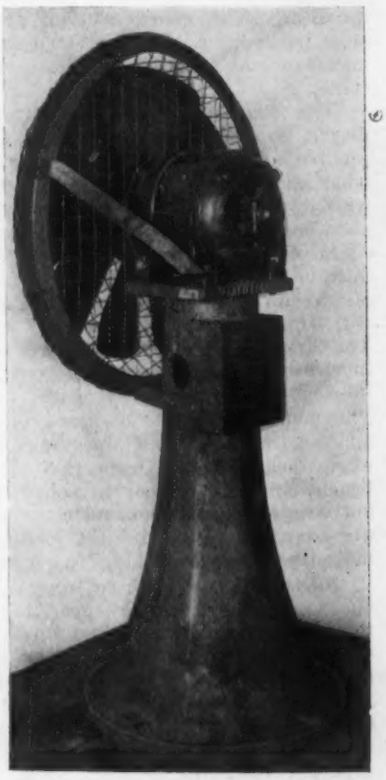
New Arc Welding Rheostat

A new arc welding rheostat for which compactness, simplicity and light weight are features claimed has been placed on the market by the Westinghouse Electric & Mfg. Co., East Pittsburgh. The device is said to be especially suited for mine and railroad service and when connected to any trolley line voltage between 400 and 650 volts, it will deliver from 60 to 210 amp. in 15 steps. Used in a cool place or outdoors in a breeze where plenty of ventilation is provided, it is claimed that the maximum rating can be exceeded considerably.

The control panel is mounted on the front of the rheostat and is protected from the resistor units by a metallic heat shield. This panel contains a 250 amp. magnetic contactor which is remotely controlled by a foot master switch. The main welding current only passes through the contactor on the panel, and the foot switch permits of opening and closing the contactor when changing electrodes or for any other purpose. Four single pole knife switches are also mounted on the panel for obtaining variations of welding current. The resistance element is made up of a number of alloy resistor units supported horizontally and insulated from the welded angle iron frame.

New "Man Cooling" Fan

A "man cooling" fan in two sizes, one having a 30-in. fan wheel and the other a 36-in. wheel, has been placed on the market recently by the Buffalo Forge Co., Buffalo. In common with other equipment of this class, the fans are intended for service in alleviating the discomfort of workers in steel mills, foundries, forge shops and in other applications where heat is intense.



Heavy construction, eliminating vibration, is a feature claimed. The three essential parts are the fan wheel, direct-connected motor and the pedestal. The wheel is madeup of ten blades which are said to be designed so that the air is delivered in a concentrated solid stream, providing high cooling efficiency with low expenditure of power. The 36 in. fan is driven by a 5-hp. motor, the 30 in. unit being equipped with a motor of 3 hp. The speed of both machines is 900 r.p.m. The screen inclosing the fan blades is of heavy material, and the rim of the screen is made of 2¼ x 2¼ angles. Four bosses are provided in the base of the pedestal for foundation bolts in case it is desired to use the machine permanently in one place. The motors provided are said to be large enough for continuous operation under the most severe conditions.

For infringement against its patented Silcrome metal, the Ludlum Steel Co., Watervliet, N. Y., has entered suit against a distributor of automobiles in which, it is claimed, the material used in the exhaust valves corresponds in analysis to that covered by the Silcrome patent. The company says that this is the first of various suits now being prepared for filing.

PACIFIC NORTHWEST

Foreign Steel Rails Imported at Low Prices—General Domestic Prices Easier

SEATTLE, July 31.—Sales representatives of Eastern steel companies say that new inquiry is better, but is not yet reflected in any increase in actual orders being placed. One warehouse here that ordinarily carries a goodly supply of all forms of finished steel states that its stocks today are lower than at any time in the past ten years or more, and says further that it will not increase its stocks until there is some tangible evidence that prices have reached bottom, adding that in its opinion this has not yet happened.

The action of the steel makers in curtailing production for the past four months or more in order to make it conform to actual buying, is highly commended by the jobbers and consumers here, as it has resulted in an orderly retreat in prices, and has allowed the jobbers to work off their stocks with minimum loss. With outside conditions so favorable, especially the better outlook for the farmer, it is the general belief here that very early in the fall there is going to be a genuine revival in demand for steel, together with some recovery over present low prices.

Foreign Steel

Importations of steel into Seattle, and also into lower coast cities, such as San Francisco and Los Angeles, seem to be increasing. The prices ruling are far below those quoted by domestic mills. A case in point is that of a purchase of 3,000 tons of 70-lb. rails made by the Bloedell-Donovan Lumber Co. The order for these rails was placed with a local importer at $43 per ton, c.i.f., Bellingham, Wash., including a duty of about $2.55 per ton, all paid by the mill at Antwerp, with which the order was placed. The third shipment on this order, about 500 tons, arrived in Seattle port a few days ago. Had these rails been placed with an American mill, they would have cost $43 at mill, with a freight charge of about $15 per ton or a total of $58 per ton at Bellingham, against the $43 price for German rails.

There have also been recently importations of other foreign steel into Seattle at prices below the domestic mill prices. It is intimated that only recently another order for standard section rails was placed with Germany by a local importer that will cost the buyer only $38 per ton, delivered on Seattle dock. However, the parties involved in this reported sale refuse to confirm or deny that such a low price was made.

Local railroads are sending out a few inquiries, but tonnages involved are small. A local interest is low bidder on about $15,000 worth of frogs and switches for a Southern road, and expects to receive the order in a few days. It includes 500 kegs of spikes, which will likely go to a Pittsburgh mill.

Prices on Domestic Business

Prices on all kinds of steel products in the local market are soft, and Eastern mills are giving their representatives here a little more leeway in quoting prices, or in meeting competition, than they have for some time. Recently, an Eastern sheet mill wired its sales manager here to accept 4.50c. at mill for a carload of No. 28 gage galvanized sheets, and other orders that will be accepted at that price. For some time, local sales managers have been holding black sheets at 3.60c., and galvanized at 4.60c. at mill, and were under strict instructions not to go below those figures. The new demand for sheets is very quiet, and there is no foreign inquiry whatever.

Local prices on plates are weak, sales of small lots having been made lately at 2.40c. f.o.b. dock at Seattle for ¼-in., and heavier, of tank quality. Freight and other charges foot up about 75c. per 100 lb., so that these plates were sold on the basis of about 1.65c. Pittsburgh mill.

Structural steel is fairly active, but local work is going at low figures. Shapes are figured on here at about 2.50c., equal to about 1.75c., Pittsburgh. The Sound Contracting & Engineering Co. has the contract for the local Eagle's Temple building in which 500 tons of shapes and reinforcing steel will be used. The new Doctors and Dentists Building now being erected here will be all concrete construction. Bids will be opened this week on about 350 tons of steel for the Wishkah bridge at Aberdeen, Wash. The Wallace Equipment Co., Seattle, is now erecting the Montlake bridge over the canal here, contract for which the company took lately. The 500 tons of steel involved was placed with a steel corporation mill.

Sheet Metal Companies Operating Open Shops

General business conditions in Seattle are good, especially new building, and all former records for new construction in one year will be greatly surpassed this year. The sheet metal workers about two weeks ago made a demand for an increase from $8 to $9 per day, but the employers refused it, and the men went out on strike. New men were at once secured, and the sheet metal concerns have announced that in the future they will all operate on the open shop plan.

Refractories Shipments Drop Further

Shipments of fire clay and silica brick, which tell the story of business more clearly than any other item, decreased further in June, according to the monthly report of the Refractories Manufacturers' Association. This perhaps is only natural in view of the large percentage of these brick finding use by the iron and steel industry and the tapering activities of that industry. As compared with May, the June shipments of fire clay brick decreased more than 6,000,000 brick, while June shipments of silica brick decreased slightly less than 1,000,000 brick as compared with the month before. The statistical position of silica brick was improved to some extent by the fact that June production ran somewhat behind the shipments, this pulling down slightly the stocks on hand at the end of the month. Production of clay fire brick in June exceeded shipments by 3,814,478 brick and stocks on hand mounted by a like total. Stocks of clay fire brick on hand at the end of June which could be applied on new business would accommodate demands at the June rate of shipments for more than two months, while the so-called "free stock" of silica brick was equal to about one month's supply at the June shipment rate.

Figures in 9-in. equivalents for June and May, figures in parentheses being the percentage to monthly economical producing capacity, of the companies reporting compare as follows:

Clay Fire Brick

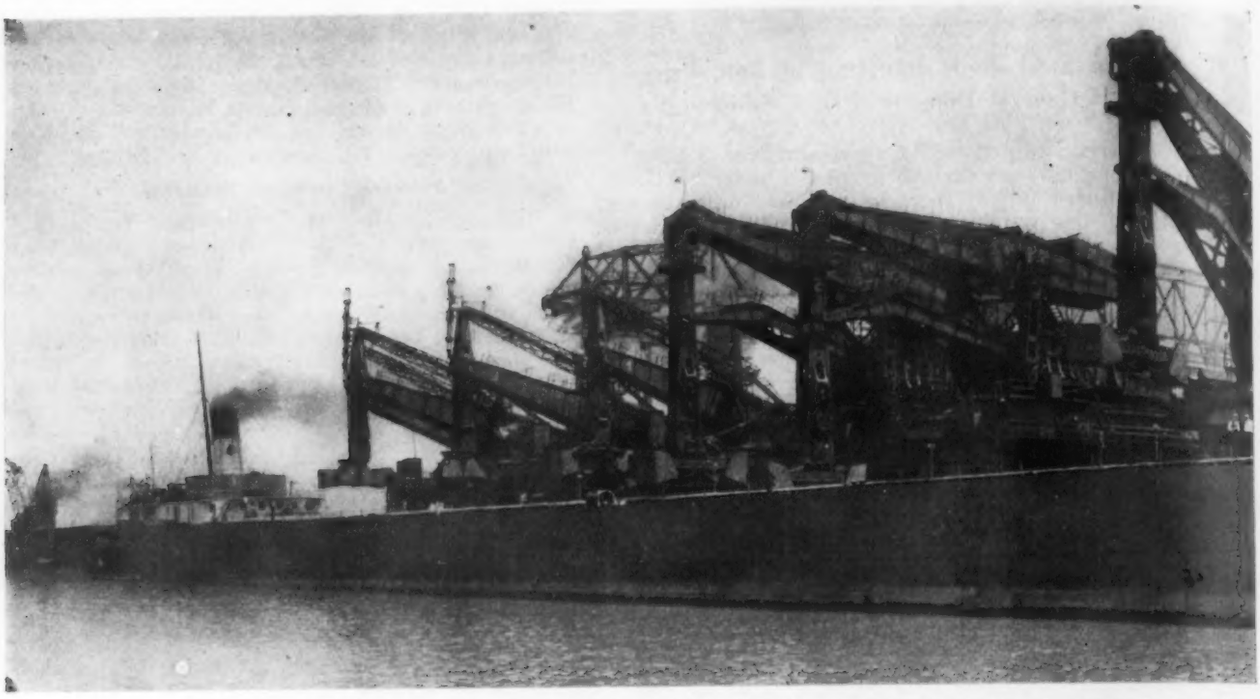
	June	May
Capacity reporting	52,448,967	52,632,300
Stock first of month	147,727,159 (281)	145,028,667 (274)
Production	33,834,783 (64)	39,417,556 (74)
Shipments	30,020,305 (57)	36,156,470 (68)
*Stock end of month	151,541,637 (288)	148,289,753 (280)
*Gross new business	25,090,009 (48)	29,764,141 (56)
Cancellations	347,152 (1)	499,928 (1)
Net new business	24,742,857 (47)	29,264,213 (55)
Unfilled orders	41,961,410 (80)	47,473,640 (90)

Silica Brick

Capacity reporting	8,019,667	8,019,667
Stock first of month	12,984,776 (161)	12,809,907 (159)
Production	2,823,512 (35)	4,213,439 (52)
Shipments	3,076,573 (38)	4,038,570 (50)
*Stock end of month	12,731,715 (152)	12,984,776 (161)
Gross new business	2,798,317 (35)	2,230,363 (28)
Cancellations	2,731 (0)	7,693 (0)
Net new business	2,795,586 (35)	2,222,670 (28)
Unfilled orders	6,619,633 (82)	6,900,620 (86)

*Stock on hand includes large quantities of shapes made up in advance of the receipt of actual orders and consequently are not "free stock," which could be made to apply on new orders. Actual "free stock" of 9-in. straights as of June 30 and May 31 are as follows:

	June 30	May 31
Clay fire brick	68,024,426	65,528,777
Silica brick	2,996,416	2,274,788



Unloading Ore at the Dock of the Pittsburgh & Conneaut Dock Co., Conneaut Harbor, Ohio, make up the equipment, the two machines at the right having been put in operation on July 1. opposite one of the hatches of the boat and the bucket lowered into the hatch. After filling, the frame work of the machine. The load is then dropped. The electrically operated units are of 15 tons each have unloaded seven

LARGEST ORE UNLOADING PLANT

Record Made in Building Last Two of Nine Unloaders

What is perhaps the largest ore unloading plant in the world is that of the Pittsburgh & Conneaut Dock Co., Conneaut Harbor, Ohio, which is equipped with nine unloaders built by the Wellman-Seaver-Morgan Co., Cleveland, as shown in the accompanying two-page illustration.

The four machines shown at the left in the illustration were the first of this type to be constructed, having been contracted for during 1890. They are of 10-tons capacity and are operated hydraulically. The first of the electrical machines was installed in 1910. The two unloaders shown at the extreme right in operation in two of the forward hatches of the lake steamship Percival Roberts, Jr., were put in operation on July 1, 1924. The contract for building these machines was awarded on Jan. 1, and completing of the work in six months is regarded as establishing a record.

Each unloader is a unit and consists of a main framework mounted on trucks which travel along runway rails located at the rear. The main framework extends back to the rear runway over a temporary storage pile. Between the front and rear runways space is provided for railroad tracks, where ore-carrying cars are placed under the machines and loaded with ore for transportation to the furnace plants. The girders of the main framework form a support for the runway rails on which a trolley travels. This trolley supports a balanced walking beam, from the outer end of which a stiff bucket leg hangs, as shown in the illustration. The bucket is at the lower end of this leg and is operated by machinery located on the walking beam. All horizontal movements of the bucket are by means of moving the trolley backward and forward on the girders, vertical movements of the bucket being accomplished by the operation of the walking beam. The forward portion of the beam being out of balance, the bucket descends by gravity as soon as the brakes of the hoisting mechanism are released. The hoisting mechanism is located in an inclosed house at the rear end of the walking beam.

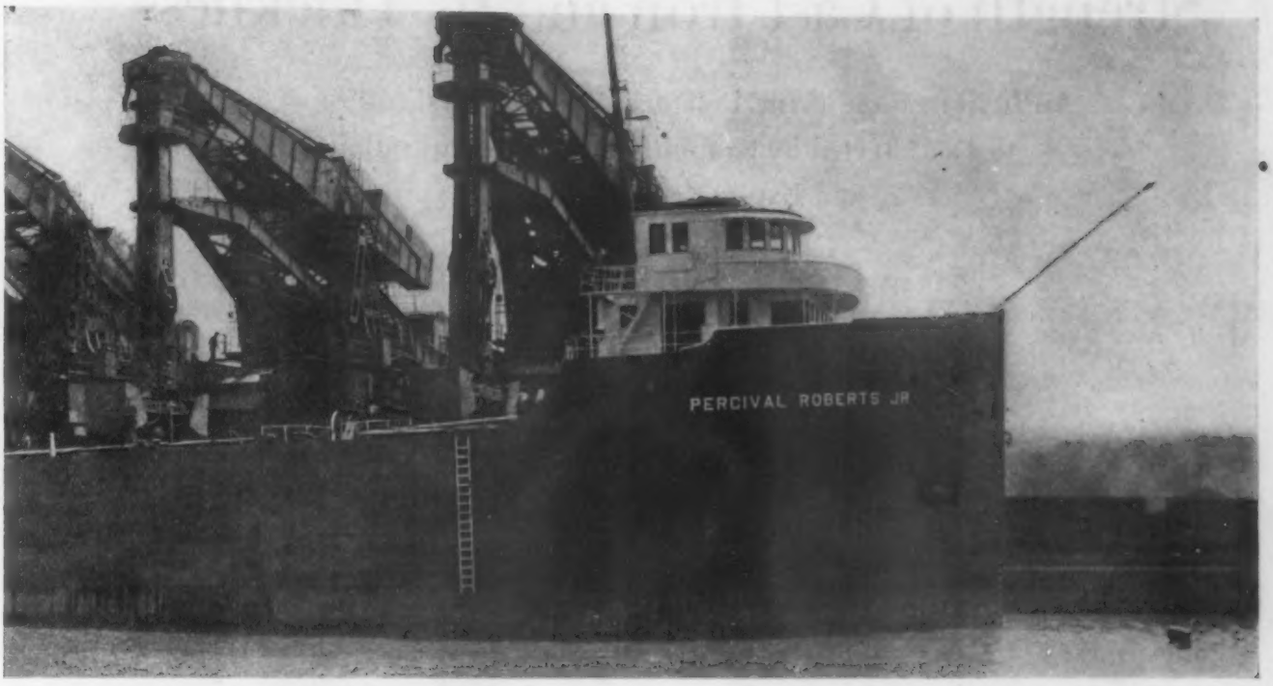
A receiving hopper mounted at the forward end of the main framework and between the main girders is provided for receiving ore discharged from the bucket. The hopper hold about three full bucket loads and is intended to act as a balancing point for the ore between the bucket and the cars or storage, as the case may be. The hopper is equipped with outlet gates, the contents being discharged as required into a larry which runs on an auxiliary track suspended from the under side of the main girders. The larries moved to a point where their contents may be discharged into cars or into a temporary storage pile.

Eight Machines Unload 70,000 Tons in 22 Hours

Machines of the type illustrated have been built in capacities of 10 and 17 tons in the bucket shells. The speeds of electrically operated units are regulated so as to operate through a complete cycle in about 50 sec. Eight machines of this type, having a capacity of 15 tons each, unloaded seven boats of 70,000 tons total capacity in 22 hr. Four machines working in boats of 13,000 tons capacity are said to have unloaded these cargoes in about 3 hr. 25 min. Unloading costs ranging from 2½ to 4½ cents per ton are claimed, which cost includes superintendence, labor, repairs and materials on the machines as well as cost of power and light.

In operating the machine, the latter is moved opposite one of the hatches of the boat to be unloaded, and the bucket is lowered through the hatch into the ore. After filling the bucket the walking beam hoist mechanism is put in operation and the bucket hoisted out of the boat. At the same time the trolley is traveled back so that the bucket is brought over the main hopper between the girders in the main framework and its contents discharged into this hopper. The bucket is then returned to the boat.

The ore in the main hopper is discharged in turn into the larry, the hopper of which is equipped with scales so that its contents may be weighed and the weight recorded. If railroad cars are not available for immediate shipment, the larry is traveled to a posi-



Which Is Credited With Being the Largest Ore Unloading Plant in the World. Nine unloaders Two operators are required for each machine. In operating, each of the units is moved bucket is hoisted out of the boat, and the trolley is traveled back over the main hopper on the regulated to complete a cycle in about 50 sec. Eight machines of this type having a capacity boats of 70,000 tons total capacity in 22 hr.

tion on the rear cantilever of the machine and its contents discharged into a temporary storage pile. From this pile it is usually reclaimed for shipment or storage by means of a bridge located on the runway at the rear.

Only two operators are required for one machine. One operator, whose station is in the bucket leg directly over the bucket shells, controlls the raising and lowering of the bucket, travel of the trolley back and forth, and moving the machine along the dock from one hatch to another. This operator travels with the bucket into the boat and can see exactly what he is doing. The second operator is stationed in a cab on the larry and controls the movement of the larry, the operation of the larry gates and the weighing of the ore.

Machine Tool Selling Problems

A conference of sales managers of machine tool building companies was held in Indianapolis in the first week of July. Expositions, advertising and the used tool problem were among the topics discussed. The meeting was held under the auspices of the National Machine Tool Builders' Association and appointed committees to investigate the questions. Following is an outline of views expressed:

The machine tool industry is called on to exhibit at many expositions. Too many expositions may become a wasteful sales expense burden. One committee is to get the opinion of the membership as to which expositions are worthy of support.

The German machine tool builders hold one annual exposition at Leipzig with great success, and the British exhibit once a year at Olympia. American machine tool builders, through lack of cooperation, exhibit at a number of shows not controlled by themselves.

The committee on advertising is to study the industry's advertising, to bring it in line with the best advertising practices and to develop the use of the strongest appeals that have been found effective. This committee is also to investigate the possibility and desirability of cooperative advertising for breaking down sales resistance.

Another question before the committee will be the possibility of suggesting certain keynotes to be used at different periods by all the members. For instance, during one period the central theme of all the industry's advertising might be "Waste from using obsolete machinery." During another period, the central theme might be "Increased profits from using up to date machinery."

The committee on used tools is to study and report on the chances of success for manufacturers to control the used tool market. Badly reconditioned and misrepresented secondhand tools damage the market standing of the manufacturer. It appears that a few members of the association have succeeded in replacing old tools in production shops with new ones, taking in the old tools at a price that will permit their being rebuilt at the factory, and resold at a profit to users who could by no means be persuaded to buy a new tool.

Eastern sales managers are likely to meet in September about the time of the New Haven machine tool exhibit.

Properties of Metals at High Temperatures

A spcial electric crucible furnace was completed during the past month at the Bureau of Standards. Four heats were made of nickel-chromium-iron alloys containing additions of cobalt, vanadium, tungsten, or molybdenum. The ingots produced are now being examined chemically and physically, and if sound and of the desired composition, test specimens will be prepared for high temperature mechanical tests.

Two series of tensile tests were made between 20 and 1000 deg. C. on a steel containing 0.3 per cent carbon, 20 per cent chromium, and 1 per cent copper, first water-quenched from 1830 deg. Fahr. or furnace-cooled from 1600 deg. Fahr. Somewhat higher proportional limits, elongations and reductions of area, but lower tensile strength values were obtained at all temperatures up to 500 deg. C. on the slowly cooled metal. These differences largely disappeared at higher temperatures.

Strength of Cast Iron and Its Thickness

An Investigation of the Relation Between Physical Properties as Affected by Graphitic Carbon—Arbitration and Experimental Test Bars

BY WILLARD ROTHER*

THE purpose of this investigation is to determine the relation between the physical characteristics of cast iron and the thickness of castings, for the guidance of the designing engineer and the protection of manufacturers. At the present time some engineers assume that if a certain cast iron has an ultimate strength of 25,000 lb. per sq. in., a section of 2 sq. in. in area should have a total strength of 50,000 lb., one 3 sq. in. in area 75,000 lb., etc. Unfortunately, this is not correct, as the results of the following tests show. By increasing the thickness of a casting there is a considerable decrease in the ultimate strength expressed as pounds per square inch cross-sectional area.

On the other hand the foundryman often makes castings of varying thickness for which arbitration bars have to be furnished. These bars are of a standard thickness, poured from the same ladle as the casting and are supposed to have the same physical characteristics. These bars are broken in the presence of an inspector and the castings are accepted or rejected on the basis of this test. Such tests are misleading because, if one of the castings should break subsequently and if a test bar were then to be taken from the casting itself, entirely different results would be obtained from tests with this bar compared with those from the arbitration bar. This often causes great losses to the manufacturer.

The controlling factor governing the strength of cast iron is the presence of graphitic carbon, or carbon in the free state. It is well known that the proportion of free and combined carbon varies with the thickness of a casting. A thin casting cools quickly and allows a considerable portion of the carbon to remain in the combined state, which gives a close-grained iron. The same iron poured in a heavier section cools much more slowly, permitting increasing quantities of carbon to change from the combined to the free state. In proportion to the time consumed in cooling, the metal becomes coarser and weaker. The photomicrographs accompanying this article show this very clearly.

Two problems, therefore, are to be solved, first to produce a test bar representative of a casting and secondly to determine the decrease in strength with increase in thickness of the casting.

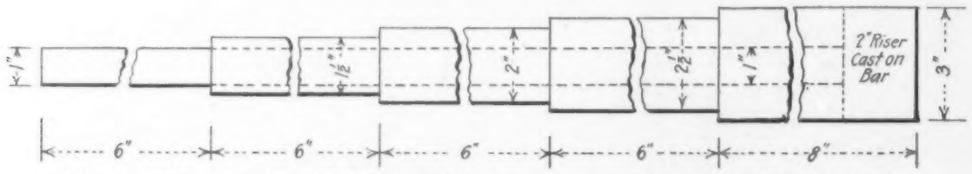


Fig. 1. The Casting From Which the Test Bars Were Taken so that Various Thicknesses Could be Tested

To approximate, as closely as possible, conditions as they would exist in pouring a casting, test bars were made of different thickness, as shown in Fig. 1. Bars were made in one piece with five different diameters, 1, 1½, 2, 2½ and 3 in. respectively, each section being 6 in. long, except for a 2-in. riser at the end.

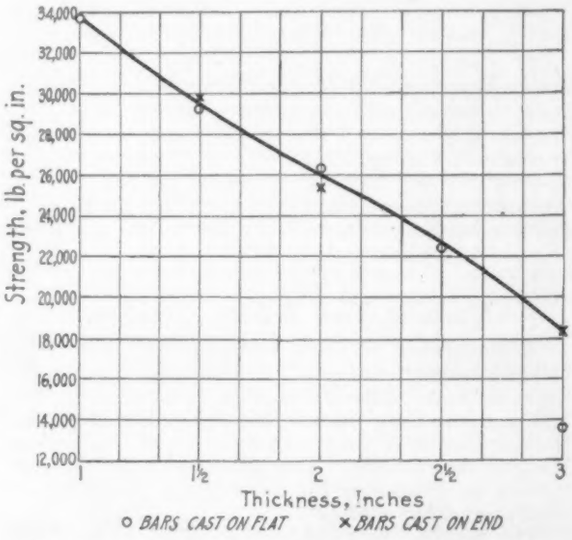


Fig. 2. Graphic Results of the Tests on the Various Bars as Given in Table I

There were two sets of two bars each cast on end

*Buffalo Foundry & Machine Co., Buffalo, N. Y.

Table I—Results of Tests on Experimental Bars

Test Bars Were 0.505 In. Dia., 0.2003 Sq. In. Cross Section

Thickness In.	Scelerescope Hardness	Brinell Hardness	Ultimate Strength, Lb. Per Sq. In. A	B	C	D	Average	Decrease in Ultimate Strength, Per Cent
Test Bars Cast Flat								
1	38	228	34,500	33,000	33,750	33,500	33,700	...
1½	34	179	30,000	27,500	29,500	30,000	29,250	13.2
2	32	179	26,250	26,000	26,500	26,500	26,300	22.0
2½	30	156	22,750	22,750	21,250	23,500	22,550	33.1
3	29	156	14,000	12,000	14,750	.....	13,600	59.6
Test Bars Cast on End								
1	..	...	30,750	29,500	30,000	.....	30,100	...
1½	..	...	30,250	29,000	29,000	29,750	29,500	12.5*
2	..	...	25,750	24,750	25,500	25,750	25,450	24.5*
2½	..	...	23,000	22,750	22,250	23,000	22,750	32.5*
3	..	...	.....	17,000	20,000	18,000	18,350	45.5*

*Compared to 1 in. bar, cast flat.

1-In. Bar

1½-In. Bar

FIG. 3. Photomicrographs From a Section of Each Bar Illustrating the Increase in the Size of the Free Carbon Plates with Each ½-In. Increase in Thickness of the Metal. All 100 ×

2-In. Bar

2½-In. Bar

and two sets of two bars each cast flat, making four test bars each. They were cast in green sand, all from the same ladle of iron, which analyzed 3.74 per cent carbon, 1.35 per cent silicon, 1.15 per cent manganese, 0.075 per cent sulphur and 0.200 per cent phosphorus.

The bars were left in the sand until the following morning, then machined to the proper size. They were taken from the center, as shown in Fig. 1. The results are shown in Table I and plotted in Fig. 2. Hardness tests were made on the shoulders of one bar of each diameter.

The graphic chart shows the average result for four bars each of the different sections cast on end and flat. The 1-in. bar cast on end showed very little more strength than the 1½-in. bar. This is caused by sand, cut from the corners of the mold by the flow of metal, lodging in this section. The 3-in. section cast on the flat was weak because of the riser placed directly over the center of bar.

If the results of the 1-in. bar on end and the 3-in. bar cast flat are disregarded, a definite relation is found

3-In. Bar

to exist between the strength and the thickness. The line shows approximately 11 per cent decrease in strength for each ½ in. increase in thickness.

Fig. 3 shows photomicrographs taken from each section of bar which clearly illustrate the increase in size of the free carbon plates with each ½ in. increase in thickness.

For comparison four arbitration bars were cast on end and four cast flat with the same metal, and broken transversely on a 12-in. span. Tensile strength was determined with bars machined from the broken sections. The results are not included in the graphic chart but will be found in Table II. The results of these tests check quite closely with those of the 1-in. bars.

This investigation shows conclusively the important influence the thickness of a casting has on its strength, and the desirability of arbitration bars which are actually representative of a casting. More work, however, is needed before a definite relationship can be established for use in engineering calculations.

Table II—Results of Test on Arbitration Bars

Arbitration bars were 1.25 in. dia., 1.227 sq. in. cross section
Test bars were 0.505 in. dia., 0.2003 sq. in. cross section

		A	B	C	D	Average
Cast flat	Transverse strength, lb. per sq. in.	4,350	4,050	4,420	4,150	4,240
	Transverse deflection	0.140	0.125	0.140	0.156	0.140
	Ultimate strength, lb. per sq. in.	31,500	34,250	32,500	32,750	32,750
Cast on end	Transverse strength, lb. per sq. in.	3,790	4,325	4,000	3,900	4,005
	Tranverse deflection	0.140	0.119	0.125	0.094	0.119
	Ultimate strength, lb. per sq. in.	34,250	33,750	33,500	34,000	33,900

Iron and Steel Exports Somewhat Greater

June Send-Out About Up to 1923 and 1922 Averages— Imports Lower Than May but About Equal to 1923 and 1922 Averages

WASHINGTON, July 28.—Showing an increase of 9634 gross tons, exports of iron and steel in June of this year amounted to 163,770 tons, valued at $18,161,669, as against 154,136 tons in May. For the fiscal year ended with June, iron and steel exports aggregated 2,009,343 tons, valued at $244,966,556, compared with 1,816,329 tons for the fiscal year ended with June, 1923.

Imports of iron and steel in June amounted to 60,569 tons, valued at $2,720,561, a decline of 6232 tons under May, when they totaled 66,801 tons. For the fiscal year ended with June, 1924, iron and steel imports amounted to 505,383 tons, as against the high total of 1,111,929 tons for the fiscal year ended with June, 1924. This latter large movement was due in great measure to heavy incoming shipments of pig iron.

Imports of iron ore in June totaled 158,284 tons, as against 151,676 tons in May; for the fiscal year ended with June of this year they were 2,360,607 tons, compared with 2,255,951 tons imported during the fiscal year ended with June, 1923. The leading countries of iron ore imports this year were Cuba, Sweden and French Africa, in the order named.

Scrap was the heaviest item of export in June, the total being 24,562 tons, while steel rails, with a total of 18,624 tons, came second. Of this latter product, the greatest movement went to Cuba, which took 6720 tons, while Canada came next with 3312 tons. Of the 8170 tons of black steel sheets exported in June, Japan was the heaviest purchaser, taking 4746 tons. Canada came second, with 2032 tons.

Amounting to 28,697 tons, pig iron imports represented the greatest incoming product in June. The Netherlands is credited as the source of the largest shipment of this product, the total from that country being 9159 tons. British India came second with 8095 tons. Other countries from which pig iron was imported in June included France, 3684 tons; England, 2830 tons; Canada, 2620 tons; Germany, 1382 tons; Belgium, 500 tons, and China, 300 tons.

In the raw, semi-finished and finished lines there were shipments from the Netherlands which are believed to have originated from German plants outside of the Ruhr, which shipped through Rotterdam because

Exports by Countries of Destination

(In Gross Tons)

	Plates				Black Sheets				Galvanized Sheets			
	June		Twelve Months Ended June		June		Twelve Months Ended June		June		Twelve Months Ended June	
	1923	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923	1924
Canada	10,082	4,781	87,921	77,721	4,917	2,032	55,494	39,637	4,632	1,195	35,068	‡20,236
Argentina	*202	*167	*1,212	*1,163	38	177	3,892	1,364	432	547	5,706	5,905
Japan	65	....	1,721	911	3,368	4,746	33,148	114,657	279	403	3,994	14,597
Cuba	153	72	864	1,087	....	95	....	1,447	1,271	1,139	9,679	10,020
Philippine Islands	....	106	50	1,133	....	18	....	375	730	2,235	10,163	12,340
Mexico	86	52	1,361	724	....	....	....	....	356	638	5,867	5,492
Chile	†	†	†	†	†	†	†	†	14	41	2,630	2,121
Colombia	†	†	†	†	†	†	†	†	196	437	4,929	2,996
Central America	†	†	†	†	†	†	†	†	254	546	3,961	4,335

	Barbed Wire				Galvanized Wire				Steel Rails			
	June		Twelve Months Ended June		June		Twelve Months Ended June		June		Twelve Months Ended June	
	1923	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923	1924
Cuba	1,177	477	8,762	8,327	326	63	2,199	2,246	6,906	6,720	42,245	40,850
Argentina	1,479	1,084	12,958	8,180	3,305	462	19,422	7,425	436	....	1,688	1,266
Australia	324	274	8,549	3,921	367	157	9,867	4,107	....	....	....	....
Mexico	287	350	3,758	3,924	252	471	3,499	3,859	360	560	5,405	8,020
British S. Africa	1,403	752	6,136	5,256	....	....	....	....	....	....	....	....
Colombia	258	758	5,480	5,224	....	....	....	....	163	2,041	9,056	6,882
Brazil	1,099	3,451	13,810	19,522	1,693	205	8,452	7,789	381	2,201	2,743	9,575
Canada	451	74	6,227	2,470	1,406	536	16,720	13,402	2,275	3,312	28,950	51,434
Japan	....	....	....	....	1,617	35	14,372	15,975	484	1,120	87,579	81,585
Great Britain	....	....	....	....	249	124	2,650	2,348	....	....	....	....
Chile	....	....	....	....	480	3	6,199	1,472	....	517	5,329	9,820
Philippine Islands	....	....	....	....	....	....	....	....	555	349	7,336	5,866
Kwan Tung	....	....	....	....	....	....	....	....	5,742	....	9,183	12,945
Honduras	....	....	....	....	....	....	....	....	2	....	9,495	4,034
Chosen	....	....	....	....	....	....	....	....	....	....	11,669	1,178

*All South America. ‡This item has been erroneously reported, for several months, at a figure much higher.
†Not reported separately.

Sources of American Imports of Iron Ore

(In Gross Tons)

	June		Twelve Months Ended June	
	1923	1924	1923	1924
Spain	21,984	.....	158,842	112,286
Sweden	77,641	7,592	648,820	439,097
Canada	11,100	106	15,424	12,212
Cuba	66,000	26,800	638,300	544,118
French Africa	39,405	30,090	243,142	294,716
Other countries	61,250	93,696	551,423	958,178
Total	277,380	158,284	2,255,951	2,360,607

Tin Plate:	June		Twelve Months Ended June	
	1923	1924	1923	1924
Canada	2,942	1,839	25,105	28,433
Japan	1,862	285	24,653	42,697
Argentina	343	448	4,232	10,960
Uruguay	174	43	2,219	2,268
China	642	2,519	5,671	31,760
British India	....	848	191	15,278
Chile	95	231	1,230	2,896
Cuba	314	980	3,258	546
Mexico	361	267	2,527	3,325
Hong Kong	....	48	1,384	8,200
Italy	11	864	2,779	3,243

In the raw, semi-finished and finished lines there were shipments from the Netherlands which are believed to have originated from German plants outside of the Ruhr, which shipped through Rotterdam because

Exports of Iron and Steel

(In Gross Tons)

	June		Twelve Months Ended June	
	1923	1924	1923	1924
Pig iron	2,960	2,057	31,891	40,596
Ferromanganese	200	1,003	3,638	*4,120
Ferrosilicon	45	4	931	1,031
Scrap	4,372	24,562	40,074	120,553
Ingots, blooms, billets, sheet bar, skelp	9,652	10,359	113,377	83,353
Wire rods	2,626	819	24,380	36,391
*Iron bars	.....	796	.....	6,756
Steel bars	15,669	9,419	166,862	133,017
Alloy steel bars	280	72	2,694	2,872
Plates, iron and steel	11,177	7,047	109,124	101,471
Sheets, galvanized	10,664	10,195	112,744	99,128
Sheets, black steel	9,995	8,170	101,306	166,802
Sheets, black iron	2,214	1,054	12,654	11,894
Hoops, bands, strip steel	2,787	2,151	38,312	37,409
Tin plate, terne plate, etc.	6,966	10,231	83,434	170,523
Structural shapes, plain material	12,141	8,998	112,114	103,036
Structural material, fabricated	5,807	4,772	86,724	79,892
Steel rails	18,937	18,624	240,477	253,521
Rail fastenings, switches, frogs, etc.	2,964	3,898	37,991	41,794
Boiler tubes, welded pipe and fittings	17,940	15,942	170,845	222,748
Cast iron pipe and fittings	1,781	2,725	44,695	28,925
Plain wire	11,182	2,721	94,684	66,433
Barbed wire and woven wire fencing	8,854	9,565	83,290	75,541
Wire cloth and screening	125	212	1,579	2,244
Wire rope	779	556	6,086	4,815
Wire nails	4,525	1,362	34,829	47,621
All other nails and tacks	705	644	8,458	7,908
Horseshoes	168	160	1,109	1,028
Bolts, nuts, rivets and washers, except track	2,094	1,529	18,858	17,791
Car wheels and axles	1,833	2,719	17,274	21,985
Iron castings	934	705	9,984	9,491
Steel castings	590	534	3,353	6,302
Forgings	217	165	2,558	2,362
Total	171,183	163,770	1,816,329	2,009,343

*Reported separately since January, 1923.

Imports of Iron and Steel Into the United States

(In Gross Tons)

	June		Twelve Months Ended June	
	1923	1924	1923	1924
Pig iron	30,033	28,697	655,286	187,714
Ferromanganese	11,786	1,993	114,187	61,552
Ferrosilicon	1,008	354	17,937	11,705
Scrap	15,717	2,326	226,502	75,077
Steel ingots, blooms, billets, slabs and steel bars	736	3,572	25,511	36,688
Rails and splice bars	4,244	6,220	24,791	36,049
Structural shapes	720	7,230	10,696	25,137
Boiler and other plates	119	990	1,623	3,929
Sheets and saw plates	104	495	1,087	3,337
Bar iron	1,365	716	10,991	5,772
Tubular products	285	6,278	3,284	31,755
Castings and forgings	385	366	1,814	2,907
Nails and screws	198	13	924	599
Tinplate	124	58	9,976	1,502
Bolts, nuts, rivets and washers	7	4	171	180
Wire rods	502	704	2,983	6,541
Round iron and steel wire	554	194	2,885	3,480
Flat wire and strip steel	83	230	812	2,148
Wire rope and insulated wire, all kinds	49	129	469	9,311
Total	68,019	60,569	1,111,929	505,383
Manganese ore	36,138	24,726	306,610	285,686
Magnesite	11,490	5,755	125,774	37,550

Imports of Iron and Steel in Gross Tons

(Monthly Averages)

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
1909 to 1913, incl	26,505	†14,132	....	....
1914 to 1918, incl	23,351	4,645	3,281	‡47,155
1919 to 1921, incl	23,901	5,708	3,710	37,115
1922	59,545	31,954	9,117	31,204
January, 1923	120,078	83,935	5,120	829
February	67,704	35,793	9,234	4,636
March	106,197	72,344	9,030	12,799
April	77,903	36,371	7,221	14,071
May	75,883	39,764	10,482	12,734
June	68,019	30,033	12,794	36,138
Six months' average	85,964	49,706	8,980	13,535
July	53,464	19,760	12,381	23,824
August	45,439	14,564	7,334	23,026
September	36,611	8,353	9,744	35,175
October	29,882	9,349	9,372	16,842
November	26,364	9,299	5,073	14,790
December	27,009	12,355	2,307	12,003
Twelve months' average	61,217	30,652	8,343	17,171
January, 1924	26,675	10,587	3,033	23,081
February	42,269	15,482	4,847	4,430
March	39,278	16,919	3,941	46,067
April	50,969	17,171	7,371	29,729
May	66,801	25,220	5,501	31,993
June	60,569	28,697	2,347	24,726
Twelve months' average	42,115	15,643	6,105	23,807

* Not included in "total imports."
† Included ferroalloys.
‡ Average for three years, 1916 to 1918 only.

of its convenient port facilities. Of the imports of ingots, blooms, billets, slabs and steel bars, amounting to 3572 tons, 1458 tons came from Belgium; 1087 tons from Sweden; 380 tons from England, and 130 tons from France, while Germany and the Netherlands are credited with 166 tons and 303 tons, respectively.

Of rail imports amounting to 6220 tons in June, 3537 tons came from Belgium; 1628 tons are credited to the Netherlands, and 420 tons to Germany, while France provided 376 tons and Canada 206 tons. Of structural shape imports, totaling 7230 tons, 2520 tons came from Belgium; 2340 tons from France; 46 tons from England; the Netherlands are credited with 2241 tons, and Germany with 72 tons.

Monthly Exports, January, 1923, to June, 1924, Inclusive

(In Gross Tons)

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,026
Calendar year 1919	4,239,837	309,682	258,907
Fiscal year 1920	4,212,732	248,126	288,766
Calendar year 1920	4,961,851	217,958	216,873
Fiscal year 1921	4,168,619	129,541	82,549
Calendar year 1921	2,213,042	28,305	10,363
Fiscal year 1922	1,721,418	28,330	63,127
Calendar year 1922	1,986,297	30,922	107,201
January, 1923	123,190	2,482	12,253
February	133,902	2,786	9,357
March	163,920	2,881	14,066
April	177,471	1,844	14,863
May	203,389	1,848	16,859
June	171,183	2,960	12,278
Fiscal year 1923	1,816,329	31,891	137,757
July	168,558	2,966	8,357
August	161,426	3,117	11,232
September	172,499	2,148	12,610
October	152,511	3,294	13,442
November	186,956	3,198	16,347
December	177,844	2,750	11,073
Calendar year 1923	1,992,595	32,318	152,748
January, 1924	247,942	3,812	8,594
February	164,820	4,773	11,463
March	123,618	4,047	2,278
April	131,276	4,117	8,275
May	154,136	4,317	4,895
June	163,770	2,057	11,178
Fiscal year 1924	2,009,343	40,596	119,744

*Calendar years.

Malleable Castings in June

Malleable castings produced in June by 132 plants amounted to 33,876 tons. Shipments were 38,247 tons, orders booked were 22,880 tons and operations were 31.2 per cent of capacity, the latter being 108,520 tons monthly. These figures, given out July 23 by the Department of Commerce, show conditions not so favorable as they were in May, when 132 plants with a capacity of 109,173 tons, operated at a rate of 45.6 per cent and produced 49,814 tons, shipped 54,487 tons and booked orders for 29,741 tons.

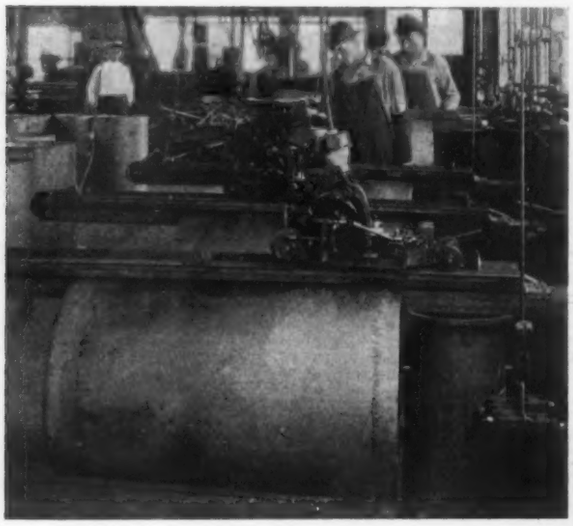
Comparing 109 identical plants, the report shows that operations were 32.1 per cent in June as against 46 per cent in May and 54 per cent in April. The production of these plants in June was 29,954 tons, shipments 33,766 tons and orders booked 19,985 tons. Production in May of the same group of plants was 43,218 tons, shipments 46,685 tons, and orders 26,866 tons.

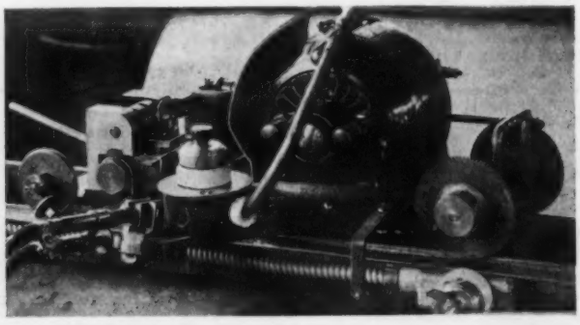
AUTOMATIC WELDING MACHINES

Straight and Circular Seams of Tanks Up to 56 In. in Diameter Welded on Production Basis

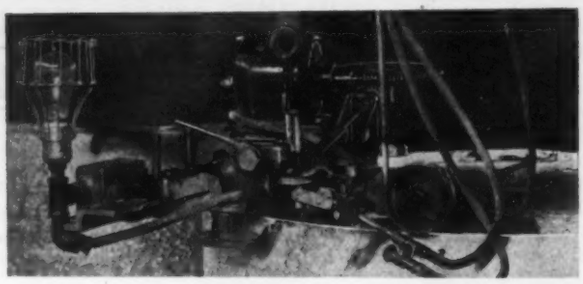
Automatic machines developed by the Milwaukee Tank Works, Inc., Milwaukee, for welding straight and circular seams of underground storage tanks up to 56 in. in diameter, and also of lubricating oil pump tanks, are shown in the accompanying illustrations. One operator handles three or more machines according to the kind of work and his experience or skill.

A feature of the machines is that the torch is oscillated automatically across the seam, producing, it is claimed, a neat, uniform, clean and solid weld.





Gas Welding Is Recommended, Although the Machine May Be Equipped for Arc Welding if Desired



Automatic Welding Machines in Operation on Straight and Circular Seams. The fixture used for straight seam welding is shown above and the arrangement for circular seam welding at the lower right. A feature is that the torch is oscillated automatically across the seam. One operator handles three or more machines

The cross movement is emphasized as especially valuable in flowing the metal together where seams have spread because of expansion. Because of this feature filling-in wire is not required, it is claimed.

Gas torches are recommended for use on the machines because they are less expensive than electrical transformers, although if it is desired to use the machines for arc welding, they can be equipped with self-feeding carbons.

Sheet metal from No. 16 gage to ¼ in. in thickness may be welded. Guarantees as to speed of operation are not given because the experience and intelligence of the operator in setting his torch and adjusting the machine is a variable factor. However, it is claimed that because of the continuous operation, more uniform, better and faster work is done by the machine than by hand, and where used for gas welding, the machine is much more economical. The longer the seam to be welded, the greater number of machines may be handled by one operator, the function of unloading and loading being performed less frequently. In the Milwaukee plant of the manufacturer of the machines one operator is able to handle only three straight seam welding machines on seams 36 in. long, because the work is finished too rapidly to permit of operating more machines, the welding being done at the rate of about 4 in. per min. In welding the heads of tanks 22 in. in diameter, which is part of the company's standard product, three small circular machines are handled by one operator.

For welding circular seams machines are available for tanks of various diameters. In all cases the head is inserted with the flange out and flush with the edge of the wrapper or shell. The circular machines may be equipped with an automatic stop which may be set at any point of the circle. This stops the traverse of the machine, throws the torch off the work, and causes a lamp to light, which indicates to the operator that the weld has been completed. The latter feature is obviously a convenience where one operator is tending a battery of machines. All parts of the machine are heavy and durable. Provision has been made for the quick adjustment of the torch either vertically or horizontally, so that the welding operation may be started quickly.

In welding straight seams the length of the seam that may be welded is limited only by the length of the clamp that holds the work. This clamp forms the track upon which the machine travels, as shown in the accompanying illustration. The clamp is not part of the regular equipment furnished by the company, but blueprints showing how the clamps may be economically constructed are available. The clamp may be fitted with a signal light which indicates that the weld is almost completed, and in this way economizes the operator's time.

The Chicago Section of the Association of Iron and Steel Electrical Engineers has elected the following officers for the coming year: Chairman, R. L. McIntosh, chief electrician Inland Steel Co., Indiana Harbor, Ind.; past chairman, H. E. Davis, chief electrician Interstate Iron & Steel Co., South Chicago; vice-chairman, Gordon Fox, Freyn Brassert & Co., Straus Building, Chicago; executive committee—R. L. McIntosh, chairman, H. E. Davis, Gordon Fox, F. L. Collins (assistant electrical engineer Gary works, Illinois Steel Co.) and D. R. Dibben (assistant chief electrician Youngstown Sheet & Tube Co., Indiana Harbor, Ind.

The American Mining Congress will hold its twenty-seventh annual convention at Sacramento, Cal., Sept. 29 to Oct. 4. J. F. Callbreath, Washington, is secretary. A special train will leave Chicago, Sept. 23, with stopovers at scenic points along the route.

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ESTABLISHED 1855

THE IRON AGE

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Corporate Financing

WITH considerable frequency the financial pages of the daily papers carry advertisements of new issues of stocks and bonds. These follow the conventional form. First, there is advertisement of the name of the issue and its principal items. Then follows a brief statement to the effect that "from his letter to us, Mr. William S. Higginbotham, president, summarizes as follows." The announcement concludes with the name of the company or firm that is making the offer, and immediately beneath it, in small type, the disclaimer that "the statements contained herein are not guaranteed but are based upon information which we believe to be accurate and reliable." We have read somewhere that the legal adviser who first drafted that form of disclaimer, which has now become conventional, received a princely fee for his composition.

The principals of the house that makes the offering call up their important clients and inform them more or less cryptically that they have "something good" and "How much shall we put you down for?" The salesmen of the house do likewise with respect to the less important clients. If the thing does not go off like hot cakes the salesmen presently start on their rounds of solicitation.

Of course the house that makes the offering has negotiated previously with the company seeking new financing and has made an arrangement assuring a good profit to itself if everything goes well. There is always the possibility that the offering may prove only slowly salable, and the salesman-in-chief, hooked, may have to put his goods away on the shelf, awaiting more opportune time to dispose of them. In times when the public evinces a strong appetite for opportunities for new investment, however, that does not happen, and there is strong competition among promoters for new issues to sell.

All of this is of the nature of straight merchandizing and in principle is as simple and straightforward as the business of a department store selling goods. The main difference is that in the latter instance the customer has an opportunity to examine the goods, while in the case of stocks and bonds he takes them on the recommendation of the promoter. The reputation of the latter is the buyer's greatest reliance. He assumes that the promoter has looked carefully into the business and is convinced of its validity and integrity. We should not be too sure of this, however, notwithstanding the reputation of the promoter.

It is well to take note that the declaration respecting physical and commercial facts is usually only that of the president, or the chairman of the board, of the concern seeking the financing, obviously an interested party. The function of the seller, who protects himself by legal disclaimer, is essentially that of salesman only. Surely no one of them, if of high class, would try to sell anything that they know to be bad or doubtful; but they may.

Even the marketing subsidiaries of great banks try to sell things that they have not looked into very carefully, excusing themselves by the representation that if they did not take on a special thing some one of their competitors would do so.

Only a few years ago a large issue of first mortgage bonds of a great agricultural chemical company was brought out by some of our leading financial concerns. It was mortifying to them, and disgusting to their customers, to have this company go into the hands of a receiver within two or three years and immediately afterward default on its bond interest. The bondholders then took steps to foreclose their mortgage. In the course of reorganization proceedings a firm of consulting engineers was retained and commissioned to investigate the assets of the company and the prospects for using them.

This is the text for our present discussion. It seems rather absurd for investors to have been lending money on a mortgage on assets and be compelled to inquire, after there has been default, what the assets are, and whether they are any good or not. The individual lender of money on

mortgage usually looks into those things in the first place. How much better would it have been if an investigation by consulting engineers had been made before instead of after.

We hope to see the day when the offerings of new securities are made not upon the unsupported declaration of "William S. Higginbotham, president," but upon the passing of opinion by a professional man—an engineer, or anybody else who may be more suitable—who may appear as a disinterested party. The American Institute of Consulting Engineers has passed resolutions urging that things should be thus.

Neither that nor the resolving by any number of professional bodies is going to bring about this desirable thing; but what is going to bring it about is the education of investors through the press and otherwise. When the investing public demands this the promoting houses will be quick to bow to the demand.

Super Alloy Steels

THE production of an alloy of phenomenal hardness, capable of cutting hardened steel and the toughest metals with ease, is the interesting possibility suggested by a leading British metallurgist. In the third Sorby lecture Dr. Walter Rosenhain of the National Physical Laboratory, in discussing "Present and Future Problems in Metallurgy," called attention to the advances made through the addition of small quantities of other elements to alter the properties of iron. At the same time he stressed the fact that but little is actually known about the causes of these changes.

Dr. Rosenhain suggested that if some other elements were treated in the same way as iron immensely valuable results might be secured. For illustration he compared tungsten with iron. That metal is many times harder than the metal which forms the basis of steel. But iron is daily being rendered many times harder by adding suitable elements or by heat treatment or by both. The lecturer went on to say that if tungsten, which is many times harder than iron, could be treated in the same way, a product of superior hardness would probably result, although the immense difficulties in the way are at once recognized.

Back of all this speculation as to the production of a "super tool steel" is the growing conviction that new combinations of metals will some day revolutionize the non-corrosive, magnetic and other steels. Plainly, our knowledge of alloy steels and alloys in general is only in its early stages.

More Motor Shipping

IT has been predicted that, as soon as the Dawes plan goes into effect and the world's business takes on a new lease of life, the present surplus of ships throughout the world will give way to a shortage of ships. This does not mean that the 15,000,000 tons now idle will all be absorbed into the channels of trade, but that ships of the types then required will be scarce.

It has been demonstrated repeatedly in the past decade that ships propelled by oil engines of the Diesel and similar types have an operating efficiency so high that steam-propelled ships cannot compete with them. This is particularly true of ships of intermediate and low speeds and for long voyages. It is true, also, for ships which spend considerable periods in ports, loading and discharging cargo, for the standby losses of the oil outfit are practically negligible. Impetus has been given to the motorship in the United States by the recent action of the Shipping Board in utilizing a $25,000,000 appropriation for converting steamships into motorships.

An analogy is found in the blast furnaces of the United States, particularly in the fact that some of them can operate at a profit only when the price of iron is above a certain figure. With cheaper iron they are idle, just as so many ships today are idle. And they go into operation only as conditions change in such a way as to make it profitable for them to do so. As the same economic situation exists in the shipping industry, the growing use of the unit less expensive to operate is merely a sign of a changing condition due to the recent development of the oil engine on a large scale.

Smoothing Our Trade Swings

THE commercial and financial interests of the United States have been engaged actively for several years in an effort to smooth out the fluctuations in trade. One designation of the object is "elimination of the business cycle." The general effort, however, is of much broader character, for when one seeks to set a time for its beginning he finds that the greatest single step in this direction was the establishment of the Federal Reserve system in 1914, just ten years ago. The old banking system did not directly encourage booms but it did magnify depressions, and the new system not only furnishes aid in mitigating depressions but definitely provides a curb to speculative booms.

In the broader effort of recent years to smooth out the trade swings the leadership of the United States Department of Commerce is everywhere recognized. Secretary Hoover's basic theory was psychological, not physical. The influence was to be applied through men's minds, not through control of materials. If business men should realize generally that a change in the volume of trade and the level of prices were coming, they would so conduct themselves as to make the course of trade smoother. As individuals they have always tried more or less to profit by the cycle, to beat it, in other words. If all should so conduct themselves the cycle would turn into a straight line, unless indeed it were reversed, and in the latter case we should soon learn not to go so far in applying our corrections.

Whether the war or the new enlightenment is responsible, it is clear that we have been getting away from the old cyclical periods. The most prominent characteristic of the old order of things was a major depression approximately every 20 years, but we now have had 31 years since the beginning of such a major and prolonged depression.

We have now the plain fact that the swings in trade have been shorter and sharper since the

Armistice than they used to be. The important question is what this means. Generally speaking, it could mean either of two things, that men have less grasp on fundamentals than formerly and are more ready to make a fresh guess, or that they are wiser and more alert so that they discount more quickly a change that is on the way. Roughly speaking, it is a question whether men are thinking better or not so well.

The conception of things cyclical moving faster than before the war makes a useful working hypothesis from which to view developments as they come, but one must be careful not to overwork it. The unprecedented rise and fall in the rate of steel ingot production during the first six months of this year may be a part of this new swing, to an extent, but it had some causes of its own. The conditions at the beginning of the rise were quite unusual for steel. In the first place, there was the point that steel prices were already up. Related to this in its influence was the fact that the trade had gotten away from the practice of making long term contracts. Then there was the largeness of capacity, whereby the buyers were given prompter or heavier deliveries than they had expected. Even in view of the new circumstances, however, it does seem that the steel market has become more flexible, which means that we ought to be prepared for quicker changes than we had before the war.

Bearing of High Building Costs

THE National Industrial Conference Board has just issued a report on the building situation, showing that building costs have doubled in the past ten years, being now 100 per cent higher than in 1914. The board also finds that rents for low and moderate priced accommodations suited to the average wage earner are 85 per cent higher than in July, 1914.

Much information has been disseminated as to the high cost of building and the high level of rents. Much has been said also to the effect that wage earners cannot afford to pay these high rates or, if they do, the payment involves a rearrangement of the family budget to the great disadvantage of some other items.

For years many contended that family budgets could not be rearranged to cover the large number of automobiles that were being bought; but the buying of automobiles continued to increase. The thing was done. Then it was claimed the people could not have automobiles and build houses in addition, but that also they seem to be doing.

In the light of these experiences, it seems unwise to conclude that a thing will stop because it looks impossible, and preferable to consider what are likely to be the results of the maneuvers by which the things are accomplished.

To an extent that is often commented upon, the widespread use of the automobile and the high cost of shelter have fitted together. When the family has an automobile it contents itself with smaller living quarters than would otherwise be considered tolerable. The comparison of building costs is on a quantitative basis, per square foot or per cubic foot, and the renter or owner makes up part of the increased price by taking a smaller quantity.

It may be that the necessary adjustments have been made. Some of them certainly have been. An important one may not have been made. Home builders may have borrowed too much. In financial circles there has been grave doubt whether all the building and loan associations will be able to pull through safely and comfortably.

Apart from this point there is to be considered what economic losses are accumulating, for in time we have to suffer from or pay for economic losses. The most objectionable feature of the building labor situation is the small amount of work done per man, which is an economic loss for which some one has to pay or suffer. Another economic loss is the low consumption of certain building materials. There is capacity to produce much more lumber, nails, brick, etc., than is being consumed. With extortionate labor cost, and the necessity of providing each home, irrespective of size, with usual plumbing, lighting and other fixtures, the economizing falls heavily upon certain materials.

In time this state of unbalance may correct itself. But it will be by the old route of price reductions in products which show much more than the average advance from pre-war levels. There is no escape ultimately from the formula that the way to increase the use of a commodity is to cheapen its cost so that it can be marketed at a price that will attract consumers.

President Campbell's Twenty Years' Service

James A. Campbell of Youngstown recently completed 20 years service as president of the Youngstown Sheet & Tube Co. He was originally elected to the position July 28, 1904, succeeding George D. Wick, resigned. Mr. Campbell had served the company as vice-president and general manager for several years prior to his selection as president, and had previously been general manager of the Republic Iron & Steel Co. in the Youngstown district. Under his direction, the Sheet & Tube company has developed from a minor position in the iron industry to the third largest steel producing interest in the world, and the second largest independent maker.

Born Sept. 11, 1854, Mr. Campbell will soon be 70 years of age. He is active in the management of the company which he heads and is constantly developing plans to improve its competitive position in the industry.

Absorption within the past three years of the Brier Hill Steel Co., at Youngstown, and the Steel & Tube Co. of Chicago, was accomplished under Mr. Campbell's direct supervision. Since the purchase of these properties, large sums have been expended in their improvement and modernization.

Rensselaer to Celebrate Its Centennial

Rensselaer Polytechnic Institute, at Troy, N. Y., celebrates Oct. 3 and 4 the hundredth anniversary of its foundation. As the oldest school of science and engineering in any English-speaking country, the celebration will be participated in by official delegates from educational institutions, scientific organizations, and engineering societies throughout the world as well as from each alumni association and from each class since 1857. There will be unveiling of tablets and a pageant on the campus illustrating scenes in the history of science and engineering during the last hundred years. According to the tentative program being rounded out by President Palmer C. Ricketts, of the institute, many of the speakers are of international prominence and from different quarters of the globe.

MORE IDLE STACKS

Net Loss of 9 Blast Furnaces in Two Months in Pittsburgh District

PITTSBURGH, Aug. 5.—Blast furnaces in production in this and nearby districts as of today total 57, a net loss as compared with two months ago of 9. The month of July saw little change in the total number of active furnaces, for since the end of June resumptions have about counterbalanced suspensions. It now looks as though the low point of blast furnace operation had been reached and so far as the steel companies are concerned, the low point appears to have been passed. Jones & Laughlin Steel Corporation, Pittsburgh, which for a time early in July had only four furnaces in operation and one of these on ferromanganese, now has six making iron and one on ferromanganese. Bethlehem Steel Co., which at the beginning of July had only one of its 11 Johnstown furnaces in production now has three in operation. Carnegie Steel Co. has 24 of the 56 furnaces in the territory embraced by this report in production, three less than at the beginning of June. Only four of the 23 merchant furnaces in the area embraced now are making iron, and there is no reason to expect an early increase in the number. Demand for merchant iron is very light and prices are too far below the producing costs of the idle stacks to permit of their operation. As a matter of fact the merchant stacks in operation are believed to be losing money and additional production at this time would only make a bad situation worse. The record of active and idle furnaces are given in the accompanying tables.

		Aug. 4, 1924		June 2, 1924	
	Total	In	Out	In	Out
Pittsburgh District					
Steel Works Furnaces					
American Steel & Wire Co.					
Donora	2	1	1	1	1
Shoenberger	2	0	2	0	2
Carnegie Steel Co.					
Carrie	7	7	0	7	0
Clairton	3	1	2	1	2
Duquesne	6	2	4	2	4
Edgar Thomson	11	4	7	6	5
Edith	1	0	1	0	1
Isabella	3	0	3	2	1
Lucy	2	1	1	1	1
Neville	1	1	0	1	0
Jones & Laughlin Steel Corporation					
Aliquippa	5	3	2	4	1
Eliza	6	3	3	4	2
Soho	1	0	1	0	1
National Tube Co.	4	3	1	3	1
Pittsburgh Crucible Steel Co.	2	1	1	1	1
Pittsburgh Steel Co.	2	1	1	2	0
Merchant Furnaces					
Clinton Iron & Steel Co.	1	0	1	0	1
Total	59	28	31	35	24
Mahoning and Shenango Valley Districts					
Steel Works Furnaces					
Carnegie Steel Co.					
Farrell	3	1	2	1	2
New Castle	4	3	1	2	2
Niles	1	0	1	0	1
Ohio	6	2	4	2	4
Sharon	1	0	1	0	1
Republic Iron & Steel Co.	7	2	5	2	5
Sharon Steel Hoop Co.	1	1	0	1	0
Trumbull Cliffs Furnace Co.	1	1	0	0	1
Youngstown Sheet & Tube Co.	9	3	6	3	6
Merchant Furnaces					
A. M. Byers Co.	1	0	1	0	1
Hanna Furnace Co.					
West Middlesex	1	0	1	0	1
Letonia, Ohio	1	1	0	1	0
Dover, Ohio	1	0	1	1	0
Reliance Coke & Furnace Co.					
West Middlesex, Pa.	1	0	1	0	1
Sharpsville, Pa.	1	1	0	1	0
McKeefrey Iron Co.	1	0	1	0	1
Sharpsville Furnace Co.	1	1	0	1	0
Shenango Furnace Co.	2	1	1	0	1
Struthers Furnace Co.	1	0	1	0	1
Stewart Furnace Co.	1	0	1	0	1
Valley Mold & Iron Corp.	1	0	1	0	1
Total	46	17	29	16	30
Western Pennsylvania					
Steel Works Furnaces					
Bethlehem Steel Co., Johnstown, Pa.	11	3	8	5	6
Merchant Furnaces					
Adrian Furnace Co.	1	0	1	1	0
American Manganese Mfg. Co.	2	0	2	0	2
Kittanning Iron & Steel Mfg. Co.	1	0	1	0	1
McKinney Steel Co.					
Scottdale, Pa.	1	1	0	1	0
Josephine, Pa.	2	0	2	0	2
Perry Furnace Co.	1	0	1	0	1
Punxsutawney Furnace Co.	1	0	1	0	1
Total	20	4	16	7	13
Wheeling District					
Steel Works Furnaces					
Carnegie Steel Co.					
Bellaire, Ohio	2	1	1	1	1
Mingo, Ohio	4	1	3	1	3
Steubenville, Ohio	1	0	1	0	1
National Tube Co.	2	1	1	2	0
Wheeling Steel Corp.	4	2	2	3	1
Weirton Steel Co.	1	1	0	1	0
Total	14	6	8	8	6
Grand Total	139	55	84	66	73

Production Still Increasing in the Mahoning Valley

YOUNGSTOWN, Aug. 5.—Ingot production and rolling mill schedules in the Mahoning Valley continue to register progressive gains from week to week.

The Carnegie Steel Co. is completing an extensive repair program at its Ohio Works plant in Youngstown, and has resumed production in its steel-making departments, suspended for one week. Independent open-hearth production schedules show 28 furnaces melting, of a total of 52.

Of 120 sheet and jobbing mills, 65 started the week in the Valley, compared with a low point the past two months of less than 20 active mills in a week's period. Twelve of 17 tube mills are rolling, which compares with a low of eight mills.

Mill managers report that orders are coming through with more regularity, and indications are the gains of the past month will be held.

The Youngstown Sheet & Tube Co. is maintaining finishing mill schedules at 65 per cent or better.

Following suspension of two weeks, the Newton Steel Co. has resumed with eight active mills, of 20; the Falcon Steel Co. is operating seven of its eight sheet mills, after an idleness of one week.

Schedules of non-integrated sheet rollers show that their business, while still spotty, is being better sustained than heretofore. The Thomas Sheet Steel Co. is operating six units this week, and the Mahoning Valley Steel Co. six mills. Rolling mill operations have been temporarily suspended by the Waddell Steel Co.

The Trumbull Steel Co. has cut the number of its active tin mills from 19 to 13.

Plant Changes of American Puddled Iron Corporation

Until the completion of important changes in its equipment, the plant at Warren of the American Puddled Iron Corporation, Youngstown, has been closed down, and will remain inactive until fall. Changes are being made in the location of machinery, rolls and other equipment. With these alterations, it is expected the property will be in shape for efficient and profitable production. It was designed to manufacture puddled iron after a mechanical process invented by E. L. Ford, of Youngstown, and over $2,000,000 has been expended in the plant. Initial operations were begun this year, but it was early necessary to make changes in the equipment. The company plans to market its product at first in the form of muck bar or billets.

The summer meeting of the American Ceramic Society has been set for Oct. 6 and 7, at the Hotel Biltmore, Los Angeles, Cal. Fred B. Ortman, Tropico Potteries, Inc., Glendale, Cal., is chairman of the meeting, and Lord Hall, Columbus, Ohio, is general secretary of the association.

The Indian Motorcycle Co., Springfield, Mass., following a two weeks' shutdown for inventory purposes, has resumed operations. The present schedule calls for a three day operating week throughout the summer. At present 750 are employed.

European Markets Mainly Unsatisfactory

Pig Iron Is Very Weak—British Sheet and Tin Plate Makers Busy and Maintaining Prices—German Plants Dismissing Workmen

(*By Cable*)

LONDON, ENGLAND, Aug. 5.

MARKET conditions generally are under holiday influences, most plants remaining closed the better part of this week, except in Scotland, where work is being continued after the resumption following the annual holidays.

Pig iron demand is poor. Makers are granting further concessions, but unsuccessfully. Hematite is dull and easier.

Finished steel is in poor request, particularly for heavy gages. Makers are in want of orders, but no important price reductions have been made.

Clyde shipbuilding output in July amounted to 15 vessels of 27,836 tons gross register, the lowest month yet this year.

Orders for 200 broad-gage cars have been placed by the Madras & Southern Mahratta Railway, with the Metropolitan Carriage, Wagon & Finance Co., Ltd., Birmingham.

Vickers, Ltd., Barrow-in-Furness, has started a new open-hearth furnace with capacity of 10 to 20 tons per heat. The total Vickers output now is 300 tons of castings weekly.

On the European Continent

Continental position is obscure. Merchant bars have been sold down to £6 (1.19c. per lb.) f.o.b., in isolated cases, the lowest price since the war. Other prices are fairly steady. The general volume of trade with dealers in England is insignificant.

In Germany the Phoenix plant at Hoerde, Westphalia, has been partly closed, involving 2700 men. The Rombacher Huette is curtailing output further at Bochum. In France DeWendel et Cie. are operating 15 of the 18 blast furnaces in the Moselle.

Tin plate improvement is being maintained on a moderate scale. The works are better placed, some asking up to 23s. ($5.12) basis IC, f.o.b. Few are willing to accept the minimum. Present output is about 10 per cent over the pre-war average, and 90 per cent of the mills available are operating.

Galvanized sheets are quiet, but prices are firm on well-sold order books. It is expected that part of a big South American order may be placed with American mills, owing to the British makers' inability to give early shipment.

Black sheets are quiet and prices unchanged.

British Market Much Depressed, Except for Sheets and Tin Plate

LONDON, ENGLAND, July 24.—The iron and steel markets continue in a very unsatisfactory state and it is difficult to see any light. Of course, the summer months are always quiet, both in buying and selling, but the trade demand, apart from these influences, is poor.

Pig iron producers in particular are hard hit. They have made successive reductions in the prices of various grades of pig iron in the hope of stimulating business and thereby disposing of their accumulation, but though Cleveland foundry is now down to £4 7s., which is quite a fair drop, consumers will go no further than purchases to cover their bare necessities. Continental iron still is competing, but even though low figures are named for this material, foreign producers do not seem to be securing many orders. It is difficult to say how long this state of affairs is likely to continue and it is also a hard task to see how pig iron prices can come down much further, in view of the costs of production, and makers therefore seem to be faced with the only alternative, which is to curtail output.

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.46 per £1, as follows:

Durham coke, del'd	£1	7s.				$6.02			
Bilbao Rubio ore†	1	4				5.35			
Cleveland No. 1 fdy	4	11				20.29			
Cleveland No. 3 fdy	4	5				18.95			
Cleveland No. 4 fdy	4	4				18.73			
Cleveland No. 4 forge	4	3				18.50			
Cleveland basic	4	4				18.73			
East Coast mixed	4	14				20.96			
East Coast hematite	4	19	to £5	0s.		22.08	to	$22.30	
Ferromanganese	16	0	and 16	0*		71.36	and	71.36*	
Rails, 60 lb. and up	8	5	to 9	0		36.79	to	40.14	
Billets	7	15	to 8	5		34.56	to	36.79	
Sheet and tin plate bars, Welsh	8	12½				38.46			
Tin plates, base box	1	2⅝	to 1	3		4.99	to	5.13	
						C. per Lb.			
Ship plates	9	5	to 9	15		1.84	to	1.94	
Boiler plates	13	0	to 13	10		2.59	to	2.69	
Tees	9	7½	to 9	17½		1.86	to	1.96	
Channels	8	12½	to 9	2½		1.71	to	1.81	
Beams	8	7½	to 8	17½		1.67	to	1.77	
Round bars, ¾ to 3 in.	9	15	to 10	5		1.94	to	2.04	
Galv. sheets, 24 g.	18	5	to 18	10		3.63	to	3.68	
Black sheets, 24 gage	13	5				2.63			
Black sheets, Japanese specifications	15	5				3.03			
Steel hoops	10	15	and 12	10*		2.14	and	2.49*	
Cold rolled steel strip, 20 gage	17	0				3.38			

*Export price. †Ex-ship. Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

(*Nominal*)

Foundry pig iron:								
Belgium	£3	18s.	to £4	0s.	$17.39	to	$17.84	
France	3	18	to 4	0	17.39	to	17.84	
Luxemburg	3	18	to 4	0	17.39	to	17.84	
Billets:								
Belgium	5	12½			25.08			
France	5	12½			25.08			
Merchant bars:					C. per Lb.			
Belgium	6	2½			1.22			
Luxemburg	6	2½			1.22			
France	6	2½			1.22			
Joists (beams):								
Belgium	6	2½			1.22			
Luxemburg	6	2½			1.22			
France	6	2½			1.22			
Angles:								
Belgium	8	0	to 8	5	1.59	to	1.64	
⅛-in. plates:								
Belgium	7	10			1.49			
Germany	7	10			1.49			
¼-in. plates:								
Luxemburg	7	10			1.49			
Belgium	7	10			1.49			

At the end of June the total number of furnaces in blast in the United Kingdom was 185, which reflected a decrease on the month of six furnaces. The statistics showing those in operation at the end of the present month are likely to show a further fall, as two more furnaces working on hematite have been damped down, owing to the excessive supplies of the material and the almost stagnant demand from the steel trades.

Finished Steel

In finished materials the only bright spots are the tin plate and galvanized sheet trades, in both of which departments a fair business has been moving, and makers have their order books comfortably filled for the next few weeks. The demand for heavy gage material, however, is poor and shows little signs of revival, particularly while Continental material is offering in some cases at as much as £2 a ton cheaper than British. The overseas markets of the world, however, seem to be refraining from entering into heavy commitments and even Continental makers are beginning to cry out for orders.

Of course, undoubtedly there is buying to be done some time or other and, as far as the Continent is concerned, when it becomes due will doubtless be reflected in a rapid rise in prices, as present selling prices are, if not below cost, very near it. The Scottish works have shut down for a short time for the annual holidays and it is hoped, upon resumption, a better tone will be in evidence than has been the case for several weeks past.

GERMAN PRICES BELOW COST

Unemployment Increasing—Railroad Rates Attacked—Tool and Machinery Trade Poor

BERLIN, GERMANY, July 21.—The eighteen agreements between the Ruhr metal concerns and the French "Micum" have been prolonged until Aug. 15, it having become clear that the Dawes reparations scheme could not possibly come into force before Aug. 1. Only a fortnight ago the concerns announced that they could no longer bear the "Micum" burdens. This time the French have met them half way by considerably reducing customs duties and other liabilities. The concerns did not feel able to face the complete industrial breakdown which would ensue if the agreements were not prolonged.

The general price-fall continues, and it has markedly affected heavy iron and steel and goods made thereof. The last wholesale index shows general prices to be only 12 per cent higher than in 1914. Since the reduction of pig iron prices already reported, prices of the products formerly controlled by the Steel Syndicate have fallen considerably. The following are the present average prices, and the magnitude of the fall may be judged from the fact that bars, which are now at most 125 marks per metric ton (1.35c. per lb.), reached 160 marks (1.73c.) in the spring.

	Goldmarks per Metric Ton	American equivalent
Ingots	90	$21.78 per gross ton
Blooms	96	23.23
Billets	105	25.41
Slabs	106 to 110	25.65 to $26.62
Wire rods	140	$3.88
Construction forms	122 to 127	1.32 to 1.37c. per lb.
Hoops	165	1.78
Thick sheets (5 mm. or No. 6½ gage and over)	145	1.57
Medium sheets (3 to 5 mm. or 11½ to 6½ gage)	155	1.67
Thin sheets (1 to 3 mm.)	165	1.78
Thin sheets (under 1 mm. or 19½ gage)	175	1.89

These prices are ex-works. They involve, the producers declare, a loss of 30 to 40 marks ($7 to $10) a ton. The so-called "savage," or unorganized, dealers are selling old stocks still lower, bars being disposed of at 110 marks (1.19c. per lb.) and even less; but the members of the Westdeutsche Eisenhandler-Verband keep to a minimum bar price of 175 marks per ton (1.89c. per lb.) in unoccupied and 165 marks (1.78c.) in occupied territory.

Railroad Rates Under Fire

Both coal and steel producers are agitating vigorously for a cut in railroad rates. This the Government has so far refused, although railroad operating expenditure has declined considerably as result of the fall in coal and iron prices. Railroad rates, though reduced 10 per cent on March 1, are higher than before the war. The charge for transporting 10 tons of coal 100 km. before the war was 29 marks ($7.02 for 10 gross tons); today it is 45 marks ($10.89); 400 km. before the war, 91 marks ($22), today, 134 marks ($32.45.) The railroad rates for transport of machinery vary, according to distance, between 150 and 200 per cent more than in 1914. The price index for railroad materials, coal, iron, building materials, wood and oil (on basis of 100 in 1914) fell from 162.32 last November to 138.58 at end of June; and, as railroad men's wages are lower than before the war, business men hold that freight rates can be reduced without loss.

More Unemployment

Unemployment is increasing. The number of publicly supported unemployed in unoccupied territory rose in the last month from 210,000 to 241,000 and still is increasing. Unemployment in the iron and steel trades increased about 15 per cent in the same time. The chief difficulty continues to be the credit famine, though there are signs of improvement here. Krupps have put many men on short time, and have given notice to discharge 5 per cent of their staff. A big Mannheim engineering corporation has discharged all its 5000 employees, and from everywhere come reports of declining production.

Against this is an increased export demand for bars and some other sorts. Germans lately delivered bars f.o.b. Rotterdam at the very low price of 112 marks per metric ton (1.21c. per lb.); and they have offered material to Austria and other neighbor states at much below production cost. There is still a good home demand for construction iron. The scrap market is entirely dead. Steel scrap, which in the spring cost 52 Dutch gulden (say $19.25) a ton now sells at 49 to 51 gold marks ($11.86 to $12.34). (The gulden, which was long used for scrap price quotations, is giving way to the gold mark, or rentenmark).

Solingen Cutlery Trade Poor

The machine tool branch is dull, and the Solingen fine steel branch is in bad condition. The number of unemployed is nearly 20,000. Domestic prices of fine steel goods are 50 to 70 per cent above 1914 and buyers tend to take only second class goods. Sheffield prices are reported to be lower, and English cutlery has gone to South America, though Solingen has received South American orders for tools.

The whole export of German steel cutlery in the first quarter of 1924 totaled 1254 metric tons, against 1644 tons in the same quarter of 1923, and 2207 tons in 1922. Exports to the Argentine were 64 tons against 101 tons in the first quarter of 1922 (which must be considered the last normal year); to Mexico 10.7 tons against 39.7 tons; to the United States only 97.7 tons, against 460 tons, and to Great Britain 114 tons against 269 tons. Exports to the Philippines were 32.9 tons against only 6 tons in 1922. In addition to the Philippines, Austria, Poland and British India have increased their purchases.

The new heavy decline in material and fuel prices is expected to help the Solingen branches, all the more so because a bill reducing the sales tax from the present 2½ per cent to 2 per cent is before the Reichstag. As this tax is collected on manufactured articles every time they change ownership in the course of production, the effective tax ad valorem is often 10 per cent or even more.

Native iron ore prices are falling. The Siegerland mines have cut prices by 2 gold marks per ton. Owing to declining smelting activity in the Ruhr district the

mines have been accumulating large stocks. The Lahn-Dill iron mines are mostly not working at all. From this branch also a reduction of railroad freight rates is demanded. In the Rhenish-Westphalian steel industry the agreement of Dec. 13, 1923, providing for longer working hours, which was reached after the abolition of the compulsory 8-hr. day law, and which expired on July 1, has been renewed until Oct. 1. The Labor Ministry has approved this, giving as its ground the absolute necessity for increased production.

BELGIAN MARKET IS SLUGGISH

Prices Weak and Subject to Severe Competition, Both Local and from Abroad

ANTWERP, BELGIUM, July 16.—The tendency of the steel market remains weak and with lower prices. As a matter of fact the firmness of foreign exchange stimulates export business, but even then the orders booked are so spread that no exact price can be determined for the different classes of materials. Quotations differ largely from works to works, in accordance with the state of their order books. Several Belgian steelworks have orders for only six to eight weeks and for a good specification such works will book at still larger price concessions. So it is that some business with England, together with some small orders for Japan and China, have been accepted at prices much lower than for home business.

Continental makers' situation is mostly difficult. On one side they meet for the moment with a general weakness on most foreign markets, while on the other side they have to reckon with high wages, dear raw materials, want of orders and also with the momentary difficulty in obtaining large credits. This last factor of course facilitates dropping of prices but usually only until part of the stocks has been liquidated.

Prices for semi-finished products are lower and as follows:

		July 16		July 2
Ordinary Thomas	ingots	fr. 440	or $20.00	fr. 450
	blooms	510	22.20	525
	billets	540	24.50	550
	largets	580	26.40	590
Hoop iron		800	36.35	810

The tendency was generally weak, with prices differing from works to works, and many of them abstained from quoting. Such prices certainly are not profitable, while the latest offers from England f.o.b. Antwerp are not above £5 10s. for blooms, i.e., fr. 528, and £5 12s. 6d. for billets, namely, fr. 540, the very lowest limits which have been accepted, but only for favorable sizes and good quantities. Luxemburg makers closely follow the same prices. French prices on the other hand were a little higher, on account of the change in the rate of exchange. Prices as stated above may in this case be increased by fr. 5 per ton, i.e., some 25c. more per ton.

Finished Steel

As regards sheet material, the following prices per metric ton f.o.b. Antwerp, for good quantities, were quoted:

Thomas sheets—			c. pr. lb.
Over 5 mm. (No. 6½ gage)	fr. 730	or $33.20	1.51
3 mm. (No. 11½ gage)	780	35.40	1.61
1½ mm. (No. 17 gage)	920	41.80	1.91
1 mm. (No. 19½ gage)	1,000	45.50	2.06
½ mm. (No. 25½ gage)	1,250	57.00	2.59
Polished sheets, average price basis	1.600	72.75	3.30
Galvanized ½ mm	2,300	104.50	4.74
Galvanized 1 mm	1,800	82.00	3.72

Several of these quotations have to be considered as nominal, as no orders were placed for export. In fact, some business could be materialized, but with inland consumers as for the foreign market competition remains strong, with prices such as £7 10s. for heavy sheets and £7 12s. 6d. for ⅛ in. sheets, while the equivalents in sterling of the Belgian prices mentioned are respectively £7 12s. and £8 2s. as a minimum.

The steel market is especially quiet. Prices again went lower. Bar iron, as a basis quoted for export, £6 5s. and even £6 3s., i.e., fr. 590 and $26.80, f.o.b. Antwerp, with fr. 575 basis prices for beams, i.e., £6 or $26.10.

Other steel products are quoted:

			C. per lb.
Rods	fr. 700	or $31.80	1.44
Corrugated bars	695	31.60	1.43
Rounds	1,200	54.50	2.47
Squares	1,225	55.60	2.52
Hexagons	1,300	59.00	2.68
Spring steel	1,200	54.50	2.47

Pig Iron Not Active

Pig iron also is lower. Producers, notwithstanding they stocked during the last weeks, tried first to resist energetically, but the busy competition from Lorraine and Luxemburg, together with lessened demand, contributed to the falling of quotations. The new price for the phosphoric quality No. 3 was fr. 385 to fr. 395, or about $17.70 per metric ton f.o.b. Antwerp or on trucks at consumers' works. Notwithstanding these too low prices, buyers remained aloof and no important business was transacted.

English hematite pig iron on the contrary became somewhat firmer. No large purchases were made, but prices returned to £5 2s. c.i.f. Antwerp, when last week they were certainly 1s. or more lower.

Business for iron was scarce as well. Prices mostly differ in accordance with the position of the makers. They run approximately as follows; with the remark that firm orders could be placed with certainly one dollar reduction:

Commercial iron No. 2	fr. 600	or	$27.25
Commercial iron No. 3	625		28.40
Commercial iron No. 4	675		30.70

JAPAN BUYS TIN PLATE

Nippon Oil Co. Places 56,000 Boxes—American Mills Firmer on Sheets — German Competition Expected

NEW YORK, Aug. 5.—Exporters, as a rule, report an increasing volume of inquiry from practically all foreign markets. South American markets are showing slightly increased activity, although inquiries are still confined to small tonnages. The Chinese market is still quiet, merchants evidently still being content to confine transactions to counter offers of prices that are too low to be acceptable to the American seller. Exporters in close touch with Chinese markets doubt that Chinese buyers are obtaining material at offered prices, even in Continental markets. The Japanese market continues the most active in inquiries and a fair volume of business is being placed.

The outstanding transaction of the past week was the award of tin plate by the Nippon Oil Co., Tokio, to the American branches of Japanese export and import companies. The original inquiry of the Nippon Oil Co. was for 28,000 boxes and it was stated that should the price be considered sufficiently low, this amount would be doubled. Award was made of 28,000 boxes to Mitsui & Co. and 28,000 boxes to Iwai & Co., both of New York. As far as is known the business has not yet been placed with the mills. The Imperial Government Railways, recently in the market for 212 tons of tie plates, has awarded this business to Takata & Co., New York.

Among current inquiries from Japan are 25 miles of 60-lb. rails, 9 miles to be delivered in October and 16 miles for January delivery. Small inquiries for light gage black sheets are still numerous, but mills are reported holding firmly to original quotations, except where fairly large tonnages are involved. The leading export sellers of light gage black sheets, 13 or 27 to the bundle, are now quoting $89 to $90 per ton, c.i.f. Japan, but would probably shade this price.

American importers are beginning to renew relations with Continental mills, in view of the probable satisfactory solution of the reparations problem. It is felt that German mills, particularly, will be in an advantageous position to export. One large German interest is reported to have issued recently a catalog and code book covering a wide range of materials, made to American specifications and of open-hearth steel. Exporters, on the other hand, are anticipating keen German competition in practically all foreign markets, when the Dawes plan is finally in force.

EXPERIMENTAL BLAST FURNACE

New One at Minneapolis Has Novel Features—Spiegeleisen Being Investigated

WASHINGTON, July 29.—A new experimental iron blast furnace which embodies all the best features, determined by observation of the performance of other furnaces constructed by Interior Department specialists, has been completed and blown in at the Minneapolis experiment station of the Bureau of Mines. The new experimental furnace is larger than the one constructed by the Bureau of Mines at Minneapolis last year, which was the first successful experimental blast furnace in the history of metallurgy.

It is expected that matallurgical studies made possible by the construction of the new blast furnace will reveal valuable information relative to the production of spiegeleisen from manganiferous iron ores which cannot be smelted under present practice. Since the United States has tremendous reserves of these manganiferous iron ores, the problem of their successful smelting is one of great importance to the iron industry.

The present furnace, which was erected in cooperation with the University of Minnesota, is 36 in. in dia. at the hearth and 30 ft. high. The first run lasted 10 days. Air was supplied to the furnace at the rate of about 600 cu. ft. per min., consuming approximately 8 tons of coke per day. From 15 to 20 tons of spiegeleisen of varying manganese content was produced during the experiments. Several hundred gas samples were taken from the interior of the furnace shaft by means of water-cooled sample tubes.

The most striking feature of the furnace experiment in contrast with previous ones lies in the fact that a rather complete survey of the composition of the gas stream in the furnace shaft was possible. By introducing water-cooled sample tubes through various testholes it was possible to cover completely six planes. As early as 1839 Bunsen determined the composition of the gas in the blast furnace at various elevations from the tuyere to the stock line. His results have been duplicated in a dozen or more investigations. In all this research samples were taken from only one point in each horizontal plane. During the 34th and 35th runs with the Bureau of Mines furnace over 1000 gas samples were taken at five elevations in the furnace shaft. These samples, however, all lay along a single diameter of the furnace section. The necessity of sampling over a complete section has long been recognized, but the difficulty of obtaining such samples in practice has heretofore not been overcome.

A considerable number of samples of raw materials, slag and metal, taken during the run, await analyzing. A study of the analysis of these samples, as well as the samples of gas removed from the charge column within the furnace, should throw considerable light upon the mechanism of the gas reactions taking place within the blast furnace shaft and should result in the obtaining of much valuable information relative to the production of spiegeleisen from manganiferous iron ores.

Plant of Ohio Steel Products Co. Sold

A. Onorato, a business man of Youngstown, has purchased the manufacturing property at Mineral Ridge, Trumbull County, Ohio, formerly owned by the Ohio Steel Products Co., Youngstown. This company was organized following the war by Major John A. Logan and others of Youngstown to manufacture conduit and other wire products, but was subsequently obliged to suspend production. The property was purchased from the Austin Co., Cleveland, the builder, which had erected two factory buildings on the site, and had acquired possession at sheriff's sale to satisfy a judgment of $92,000.

The Ohio Steel Products Co. is understood to have expended about $400,000 on the tract, consisting of 7½ acres. On it are two factory buildings, of steel, brick and glass. One is two stories in height, 80 x 470 ft., equipped with a traveling crane and other machinery. The other is one story, 60 x 400 ft.

The new owner has not fully announced his plans, but will use the plant for manufacturing purposes.

Report to Favor Drastic Cut in Varieties of Sheet Steel

WASHINGTON, Aug. 6.—Drastic reductions in the number of sizes and gages of sheet steel will be recommended by the Sheet Steel Simplification Committee of that industry, it is indicated in reports made to the Division of Simplified Practice, Department of Commerce, today. The final action on the recommendations by the industry itself has not yet been completed, but will be in the near future.

The progress made to date indicates that in the three chief products, galvanized flat sheets, one pass cold-rolled box annealed sheets and blue annealed sheets, the reduction favored by the industry will be from 1630 items to less than 185 items or one-ninth of the variety now made. It was also forecasted in the report that there will be approximately one-fourth of the variety of items slashed from the present 199 items of galvanized and painted roofing.

Work on the part of the sheet steel industry toward this end was begun more than a year ago, but it has been speeded up since the Division of Simplified Practice, in cooperation with the Sheet Steel Simplification Committee, made a careful analysis of actual sales for each item produced over a period of six months. This analysis, presented at a meeting last May, of heads of all of the mills making sheet steel, showed that in the past a wide range of items had been listed in which the demand was negligible, and that production could be concentrated on less than a quarter of the items previously listed, without injury to manufacturer or consumer.

W. C. Carroll, vice-president of the Inland Steel Co. of Chicago, is chairman of the Sheet Steel Simplification Committee and the other members are F. O. Schoedinger of Columbus, Ohio; W. W. Sebald American Rolling Mill Co., Middletown, Ohio; W. E. Scott, Youngstown Sheet & Tube Co., Youngstown, Ohio, and L. D. Mercer, United Alloy Steel Corporation, Canton, Ohio. W. S. Horner and Walter W. Lower, president and secretary, respectively, of the National Association of Sheet and Tin Plate Manufacturers, cooperated with the committee in making the survey.

Installations of Sheet Mill Furnaces

An installation of 24 furnaces is to be made in the Sparrows Point, Md., plant of the Bethlehem Steel Co. by Tate-Jones & Co., Inc., Pittsburgh. Twelve are sheet furnaces and 12 are Costello patented continuous pair furnaces. They will be stoker fired and one stack will be used instead of separate stacks for the sheet and pair furnaces. One furnace of each type is now being erected for the Weirton Steel Co., Weirton, W. Va., as an addition to 16 furnaces installed last year. Eight Costello furnaces at the Youngstown Sheet & Tube Co., Youngstown, Ohio, and three at the Thomas Sheet Steel Co., Niles, Ohio, are also being erected at the present time.

The American Car & Foundry Co. is running on a full time schedule at its Berwick, Pa., plant, giving employment to a regular working force. Incoming orders are said to insure continuance for some weeks on this basis. A contract has recently been secured for 200 steel hopper cars for the Cambria & Indiana Railroad.

The Bethlehem Steel Co. is increasing operations at its Lackawanna Works, Buffalo, and employment is now being given to approximately 4000 men in different departments; this number, it is stated, will be advanced at an early date. Under maximum production, the mills employ about 7500 operatives.

JULY IRON OUTPUT

Decrease from June 9964 Gross Tons Per Day

Net Loss 17 Furnaces, with 23 Shut Down and 6 Blown In

Another decided curtailment in blast furnace output took place in July but it was by no means as severe as in June. The decrease in July from June was 9964 tons per day contrasting with a loss of 16,817 tons per day in June. In May it was 23,423 tons per day while in April it was 4028 tons per day. The net loss in active furnaces was 17 in July as compared with 23 in June, according to revised telegraphic returns. With the 46 net loss in May and the 40 in April, the total for the last four months has been 126, an unprecedented record.

The production of coke and anthracite pig iron for the 31 days of July amounted to 1,784,899 gross tons or 57,577 tons per day as compared with 2,026,221 tons or 67,541 tons per day for the 30 days of June. This is a loss of 241,322 tons or 9964 tons per day, about 14.75 per cent. The July rate is the lowest since January, 1922, when it was 53,063 tons per day. It is also a little less than half the rate in July, last year. There were 23 furnaces blown out or banked and 6 blown in, a net loss of 17. Of the 23 furnaces shut down, 14 were steel-making and 9 were merchant.

The capacity of the 144 furnaces active on Aug. 1 is estimated as 55,350 tons per day as compared with 62,200 tons per day for the 161 furnaces in blast July 1.

The ferromanganese output in July was 14,367 tons, a decided decrease from June, while the spiegeleisen production increased considerably at 15,328 tons.

Daily Rate of Production

The daily rate of production of coke and anthracite pig iron by months, from July, 1923, is as follows:

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant	Total
July, 1923	88,798	29,858	118,656
August	86,479	24,795	111,274
September	78,799	25,385	104,184
October	77,255	24,331	101,586
November	72,352	24,124	96,476
December	69,921	24,304	94,225
January, 1924	73,368	24,016	97,384
February	83,126	22,900	106,026
March	86,276	25,533	111,809
April	82,101	25,680	107,781
May	62,176	22,182	84,358
June	50,237	17,304	67,541
July	43,353	14,224	57,577

The figures for daily average production, beginning with January, 1918, are as follows:

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1918—Gross Tons

	1918	1919	1920	1921	1922	1923	1924
Jan.	77,799	106,525	97,264	77,945	53,063	104,181	97,384
Feb.	82,835	105,006	102,720	69,187	58,214	106,935	106,026
Mar.	103,648	99,685	108,900	51,468	65,675	113,673	111,809
Apr.	109,607	82,607	91,327	39,768	69,070	118,324	107,781
May	111,175	68,002	96,312	39,394	74,409	124,764	84,358
June	110,793	70,495	101,451	35,494	78,701	122,548	67,541
July	110,354	78,340	98,931	27,889	77,592	118,656	57,577
Aug.	109,341	88,496	101,529	30,780	58,586	111,274	.....
Sept.	113,942	82,932	104,310	32,850	67,791	104,184	.....
Oct.	112,482	60,115	106,212	40,215	85,092	101,586	.....
Nov.	111,802	79,745	97,830	47,183	94,990	96,476	.....
Dec.	110,762	84,944	87,222	53,196	99,577	94,225	.....
Year	105,496	83,789	99,492	45,325	73,645	109,713	.....

Among the furnaces blown out or banked during July were the following: The Harriet Y. furnace and one Susquehanna furnace in the Buffalo district; one furnace at the Steelton plant of the Bethlehem Steel Corporation and the Vesta furnace in the Lower Susquehanna Valley, as well as the Sheridan furnace in the Lebanon Valley; No. 2 Clairton, A and G Edgar Thomson and No. 2 Isabella furnace of the Carnegie Steel Co. in the Pittsburgh district; one furnace at the Cambria plant of the Bethlehem Steel Corporation in western Pennsylvania; the Covington furnace in Virginia; one furnace at the Sparrows Point plant of the Bethlehem Steel Corporation in Maryland; Riverside No. 2 furnace in the Wheeling district; No. 5 furnace of the National Tube Co. and the Upson furnace in central and northern Ohio; the Belfont furnace in southern Ohio; two South Chicago (old) furnaces of the Illinois Steel Co. and one Federal furnace in the Chicago district; the Zenith and Missouri furnaces in Minnesota and Missouri, and No. 1 furnace of the Sloss-Sheffield Steel & Iron Co. in Alabama.

Among the furnaces blown in during July were the following: No. 4 Newcastle furnace of the Carnegie Steel Co. and No. 1 Shenango furnace in the Shenango Valley; G and H furnaces at the Cambria plant of the Bethlehem Steel Corporation in western Pennsylvania and one furnace of the Youngstown Sheet & Tube Co., as well as the Trumbull-Cliffs furnace in the Mahoning Valley.

Output by Districts

The accompanying table gives the production of all coke and anthracite furnaces for July and the three months preceding.

Pig Iron Production by Districts, Gross Tons

	July (31 days)	June (30 days)	May (31 days)	April (30 days)
New York	86,738	108,263	151,649	203,920
New Jersey	.....	.....	.....	12,545
Lehigh Valley	45,480	53,627	79,843	83,969
Schuylkill Valley	50,735	56,472	63,578	64,558
Lower Susquehanna and Lebanon Valleys	21,970	37,647	44,825	63,448
Pittsburgh district	380,058	429,821	541,295	657,479
Shenango Valley	66,350	65,566	86,777	131,987
Western Pa.	43,754	58,282	97,951	138,455
Maryland, Virginia and Kentucky	42,072	42,601	56,653	77,247
Wheeling district	61,728	94,213	123,689	152,843
Mahoning Valley	142,348	124,065	190,104	326,091
Central and Northern Ohio	223,295	260,253	301,187	308,615
Southern Ohio	12,509	19,848	43,624	50,874
Illinois and Indiana	267,161	325,142	440,790	586,722
Mich., Minn., Mo., Wis., Colo. and Utah	109,068	119,119	132,169	126,765
Alabama	218,676	219,507	249,268	230,548
Tennessee	12,957	11,795	11,708	17,362
Total	1,784,899	2,026,221	2,615,110	3,233,428

Capacities in Blast Aug. 1

The following table shows the number of furnaces in blast Aug. 1 in the different districts and their capacity, also the number and daily capacity in gross tons of furnaces in blast July 1.

Coke and Anthracite Furnaces in Blast

Location of Furnaces	Total Stacks	Aug. 1 — In Blast	Aug. 1 — Capacity per Day	July 1 — In Blast	July 1 — Capacity per Day
New York:					
Buffalo	22	6	2,295	8	3,700
Other New York	5	1	295	1	290
New Jersey	4	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	3	1,315	3	1,295
Spiegel	2	1	145	1	135
Schuylkill Valley	15	5	1,650	5	1,960
Lower Susquehanna	9	1	450	2	820
Ferromanganese	1	0	....	1	55
Lebanon Valley	4	1	190	1	185
Ferromanganese	2	1	45	2	110
Pittsburgh District	55	25	10,410	29	13,200
Ferro and spiegel	4	3	300	4	520
Shenango Valley	17	7	2,670	5	1,850
Western Pa.	22	5	1,490	4	1,180
Ferro and spiegel	2	0	....	0	....
Maryland	5	2	1,000	2	895
Ferromanganese	1	0	....	1	90
Wheeling District	14	6	2,275	7	2,800
Ohio:					
Mahoning Valley	28	10	4,815	8	4,150
Central and Northern	25	13	6,405	15	6,900
Southern	13	1	340	3	640
Spiegeleisen	1	1	75	0	....
Illinois and Ind.	42	17	8,310	20	9,765
Mich., Wis. and Minn.	12	5	2,045	6	2,290
Colo., Mo. and Utah	6	4	1,325	5	1,625
The South:					
Virginia	18	0	....	1	105
Kentucky	7	1	300	1	285
Alabama	39	21	6,730	22	6,900
Ferromanganese	1	1	65	1	60
Tenn., Ga. and Texas	15	3	410	3	395
Total	403	144	55,350	161	62,200

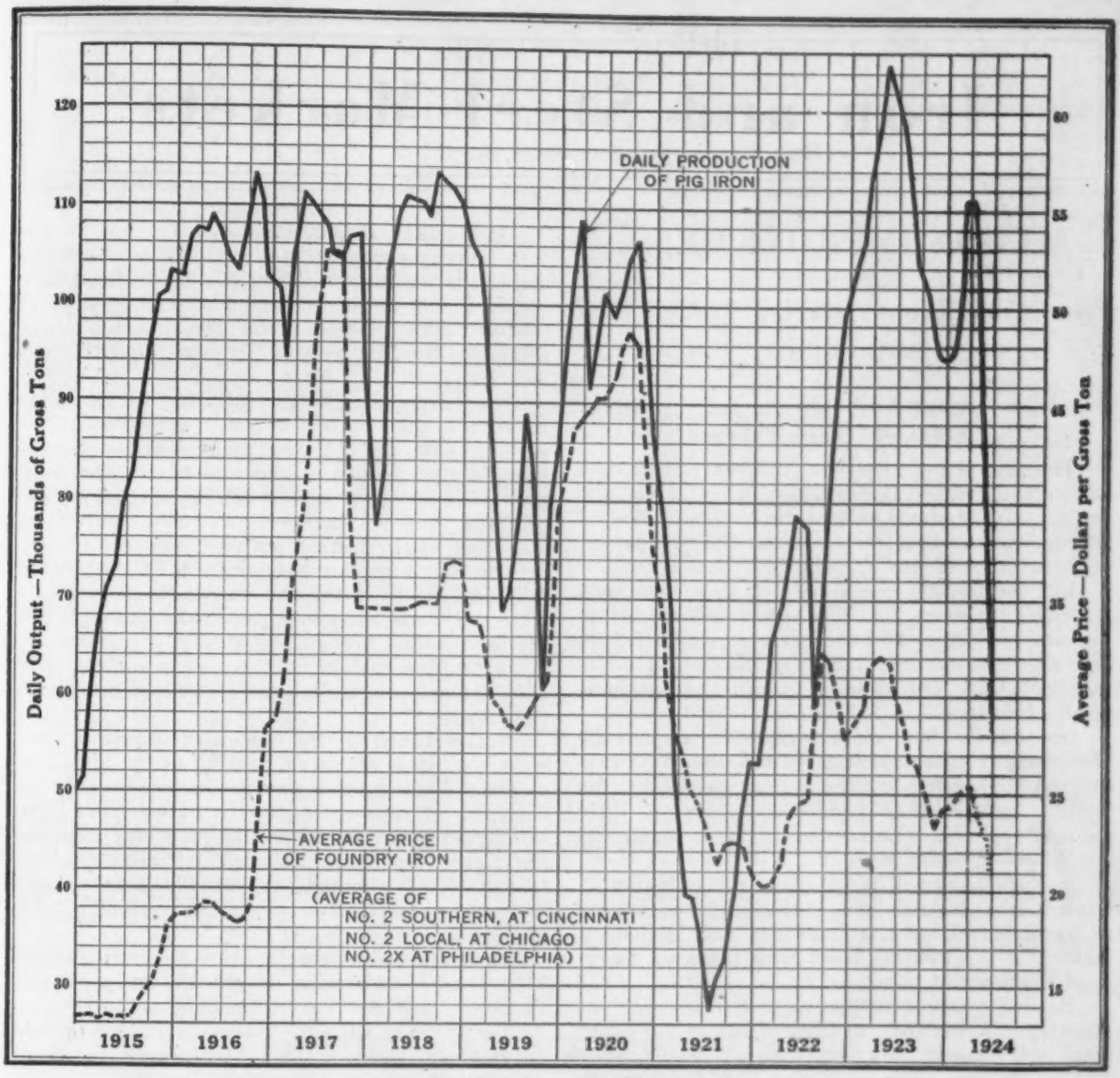

Diagram of Pig Iron Production and Price

Production of Steel Companies—Gross Tons

Returns from all furnaces of the United States Steel Corporation and the various independent steel companies, as well as from merchant furnaces producing ferromanganese and spiegeleisen, show the foregoing totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

Production of Steel Companies—Gross Tons

	Total Production		Spiegeleisen and Ferromanganese			
			1923		1924	
	1923	1924	Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan.	2,479,727	2,274,005	19,358	12,056	20,735	7,948
Feb.	2,259,154	2,410,658	21,282	3,657	22,405	9,870
Mar.	2,724,305	2,674,565	20,730	13,832	22,351	13,796
Apr.	2,704,360	2,463,027	20,808	7,440	23,580	4,240
May	2,976,892	1,927,461	19,568	9,533	14,993	9,336
June	2,727,208	1,507,110	19,717	18,289	20,049	9,405
½ year	15,871,646	13,256,826	121,564	64,807	124,113	54,595
July	2,752,738	1,343,952	26,493	12,876	14,367	15,328
Aug.	2,680,851	.....	22,045	5,586	.....	.....
Sept.	2,363,967	.....	23,206	4,478	.....	.....
Oct.	2,394,922	.....	20,015	15,931	.....	.....
Nov.	2,170,567	.....	14,839	16,783	.....	.....
Dec.	2,167,563	.....	18,069	10,124	.....	.....
Year	30,402,254	.....	246,231	130,585	.....	.....

Production and Price Chart

The fluctuations in pig iron production from 1915 to the present time are shown in the accompanying chart. The figures represented by the heavy lines are those of the daily average production, by months, of coke and anthracite iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnaces in Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

Production of Coke and Anthracite Pig Iron in United States by Months, Beginning Jan. 1, 1920—Gross Tons

	1920	1921	1922	1923	1924
Jan.	3,015,181	2,416,292	1,644,951	3,229,604	3,018,890
Feb.	2,978,879	1,937,257	1,629,991	2,994,187	3,074,757
Mar.	3,375,907	1,595,522	2,035,920	3,523,868	3,466,086
Apr.	2,739,797	1,193,041	2,072,114	3,549,736	3,233,428
May	2,985,682	1,221,221	2,306,679	3,867,694	2,615,110
June	3,043,540	1,064,833	2,361,028	3,676,445	2,026,221
½ year	18,138,986	9,428,166	12,050,683	20,841,534	17,434,492
July	3,067,043	864,555	2,405,365	3,678,334	1,784,899
Aug.	3,147,402	954,193	1,816,170	3,449,493	.....
Sept.	3,129,323	985,529	2,033,720	3,125,512	.....
Oct.	3,292,597	1,246,676	2,637,844	3,149,158	.....
Nov.	2,934,908	1,415,481	2,849,703	2,894,295	.....
Dec.	2,703,855	1,649,086	3,086,898	2,920,982	.....
Year*	36,414,114	16,543,686	26,880,383	40,059,308	.....

*These totals do not include charcoal pig iron. The 1923 production of this iron was 251,177 tons.

German exports of excavating machinery have declined considerably during the first few months of 1924, says Vice Consul Erik W. Magnuson of Stuttgart in a report to the Department of Commerce, even though her 1923 shipments were 38 per cent greater than in 1922.

Iron and Steel Markets

MIXED IMPROVEMENT

Price Concessions Develop Under Forward Inquiry

Pig Iron Output Falls Off in July—Now at 20,000,000 Tons a Year

The note of improvement still comes from steel selling centers and is expressed in better demand for certain products, slight increases in rolling mill operations and in some cases the willingness of consumers to buy for the fourth quarter.

But the developments are not all of one sort. Inquiries for more than fill-in tonnages are bringing out low prices and the basis on which future delivery business could be put through is undetermined. Structural work is still the backbone of the industry.

Operations show week-to-week variations, the Steel Corporation advancing a little above its rate of late July, with leading independents not far behind and smaller companies showing little change. Forty-five per cent is a fair estimate for the whole industry.

In the Chicago district, under the influence of the advance in grain, the outlook for the buying of agricultural steel is improved and implement makers in the Central West have taken on fairly good tonnages of bars.

Blast furnace returns for July bear out the recent prediction that, in spite of better buying of steel last month, pig iron output would show further decline. The total was 1,784,899 tons, or 57,577 tons a day, against 2,026,221 tons in June, or 67,541 tons a day—a falling off of nearly 15 per cent from the daily rate of June.

July showed a net loss of 17 in active blast furnaces, making a total of 126 going out in the four months since March. The 144 furnaces in blast on Aug. 1 had a daily capacity of 55,350 tons, against 62,200 tons for the 161 furnaces active on July 1.

The blast furnace performance of last month is less than half that for July last year—3,678,000 tons—and it falls below the 1,816,000 tons of August, 1922, when the industry was in the double grip of the coal and railroad strikes.

Pig iron production is now at the rate of but little more than 20,200,000 tons a year, or half the 40,361,000 tons made in 1923. So low a rate being out of line with present consumption, August is expected to arrest the decline if it does not bring an upturn.

Buying of pig iron is on a very moderate scale, and in some districts, especially at Pittsburgh, extreme dullness prevails. More interest is shown at some Ohio points and at St. Louis, while at Chicago the recent advance of 50c. is being maintained. For Southern iron, $18 is more frequently paid at Northern points.

Some life has been injected into the ferromanganese market by a cut in the British product from $105 to $100, followed by a $99 quotation by a domestic maker.

On a sale of 200,000 tons of Lake Superior ore to a radiator company, keen competition developed and in addition to concessions usually made on term contracts one of the smaller mining companies is credited with shading prices 50c. per ton. Ore shipments for July were 30 per cent below those of July last year.

The increased melting of pig iron by foundries in Detroit district which had been expected for early August has not been realized and it is now believed that August output will be not far from that of July. Automobile plants, with few exceptions, show no increase and in the case of two large producers schedules have been reduced.

The Ford company has just been in the market for body sheets, strips and bars. On body sheets 4.75c. was done, and on strips less than 2.30c., while the bar contract brought out similar concessions.

Slabs have sold in northern Ohio at less than $35, Youngstown, as against a nominal market of $38 recently.

Nearly 37,000 tons of fabricated structural steel work was let in the week, well up to the high rate of the preceding three weeks. Included was some 8000 tons of silicon steel for the Philadelphia Electric power house and 2400 tons of bridge steel for the Great Northern Railroad. Fresh inquiries totaled 16,500 tons and an unusually large amount is about to come from architectural and engineering offices, particularly in the East.

Including 2950 cars for the Missouri Pacific, 3160 freight cars were bought in the week but locomotive and new car business is negligible.

The Nippon Oil Co., Japan, is buying 56,000 boxes of tin plate in the United States, the Steel Corporation taking about 20,000 boxes.

THE IRON AGE price composites remain without change from the past two weeks, steel being 2.524c. per lb., or 149 compared with 100 for the ten-year pre-war average, and pig iron $19.29 per gross ton, or 122 against 100 for the ten-year pre-war average.

Pittsburgh

Steel Orders Show Moderate Gain—Independent Operations Increase

PITTSBURGH, Aug. 5.—Sentiment in the steel market still is cheerful, but this seems to be based more upon what the future is expected to produce, than upon current happenings. True, orders for steel are gaining in number as they have for the past four weeks, and here and there some increase is noted in the size of the individual purchases, but the enthusiasm created by the larger demands is somewhat modified by the lack of volume and the continued weakness of prices when inquiries slightly out of the ordinary in size have been presented.

A notable case of this sort has developed in the past week with the appearance of the largest maker of low priced automobiles in the market for sheets, strips and bars. In the case of sheets this interest was able to secure supplies at 4.75c., base, as against 5c., the recent

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 5, 1924	July 29, 1924	July 8, 1924	Aug. 7, 1923
No. 2X, Philadelphia‡	$21.26	$21.26	$21.26	$25.76
No. 2, Valley Furnace†	19.00	19.00	19.00	24.00
No. 2, Southern, Cin'ti†	21.55	21.55	22.05	28.05
No. 2, Birmingham, Ala.†	17.50	17.50	18.00	24.00
No. 2 foundry, Chicago*	20.00	20.00	19.50	27.00
Basic, del'd, eastern Pa.	20.00	20.00	20.00	25.00
Basic, Valley furnace	19.00	19.00	19.00	24.50
Valley Bessemer, del. P'gh	21.76	21.76	22.26	28.26
Malleable, Chicago*	20.00	20.00	19.50	27.00
Malleable, Valley	19.00	19.00	19.00	24.50
Gray forge, Pittsburgh	20.26	20.26	20.26	25.76
L. S. charcoal, Chicago	29.04	29.04	29.04	32.15
Ferromanganese, furnace	*99.00*	105.00	107.50	117.50
Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	38.00	38.00	38.00	42.50
O.-h. billets, Pittsburgh	38.00	38.00	38.00	42.50
O.-h. sheet bars, P'gh	38.00	38.00	40.00	42.50
Forging billets, base, P'gh	43.00	43.00	43.00	47.50
O.-h. billets, Phila.	43.17	43.17	43.17	47.67
Wire rods, Pittsburgh	48.00	48.00	48.00	51.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	*2.00*	2.15	2.15	2.40
Light rails at mill	*1.85*	1.90	1.90	2.25
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.42	2.42	2.42	2.67
Iron bars, Chicago	2.20	2.20	2.20	2.40
Steel bars, Pittsburgh	2.15	2.15	2.15	2.40
Steel bars, Chicago	2.15	2.15	2.20	2.60
Steel bars, New York	2.49	2.49	2.49	2.74
Tank plates, Pittsburgh	2.00	2.00	2.15	2.50
Tank plates, Chicago	2.25	2.25	2.25	2.80
Tank plates, New York	*2.09*	2.14	2.19	2.84
Beams, Pittsburgh	2.00	2.00	2.15	2.50
Beams, Chicago	2.25	2.25	2.25	2.70
Beams, New York	2.34	2.34	2.34	2.84
Steel hoops, Pittsburgh	2.60	2.60	2.75	3.15

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Aug. 5, 1924	July 29, 1924	July 8, 1924	Aug. 7, 1923
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.40	3.40	3.50	3.75
Sheets, galv., No. 28, P'gh	4.50	4.50	4.60	5.00
Sheets, blue an'l'd, 9 & 10	2.60	2.60	2.75	3.00
Wire nails, Pittsburgh	2.85	2.85	2.90	3.00
Plain wire, Pittsburgh	2.60	2.60	2.65	2.75
Barbed wire, galv., P'gh	3.55	3.55	3.70	3.80
Tin plate, 100-lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	**$17.00**	$16.50	$16.50	$19.50
Carwheels, Philadelphia	17.50	17.50	17.00	20.00
Heavy steel scrap, P'gh	*17.50*	18.00	17.00	17.00
Heavy steel scrap, Phila.	**16.00**	15.50	15.50	15.50
Heavy steel scrap, Ch'go	**15.50**	15.25	14.50	16.00
No. 1 cast, Pittsburgh	18.00	18.00	17.50	20.00
No. 1 cast, Philadelphia	17.00	17.00	18.00	20.00
No. 1 cast, Ch'go (net ton)	**17.50**	17.00	16.75	18.50
No. 1 RR. wrot. Phila.	18.00	18.00	17.50	18.00
No. 1 RR. wrot. Ch'go (net)	13.50	13.50	12.50	14.00
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$3.00	$3.00	$4.50
Foundry coke, prompt	4.00	4.00	4.25	5.25
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	13.25	13.25	13.50	14.75
Electrolytic copper, refinery	**13.12½**	12.87½	12.00	14.12½
Zinc, St. Louis	**6.17½**	6.07½	5.77½	6.15
Zinc, New York	**6.52½**	6.42½	6.12½	6.50
Lead, St. Louis	**7.37½**	7.35	6.65	6.62½
Lead, New York	**7.65**	7.50	7.00	6.75
Tin (Straits), New York	**51.75**	48.37½	43.62½	38.37½
Antimony (Asiatic), N. Y.	**9.00**	8.87½	8.30	7.60

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market report on other pages.

Composite Price, Aug. 5, 1924, Finished Steel, 2.524c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

July 29, 1924,	2.524c.
July 8, 1924,	2.589c.
Aug. 7, 1923,	2.775c.
10-year pre-war average,	1.689c.

Composite Price, Aug. 5, 1924, Pig Iron, $19.29 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

July 29, 1924,	$19.29
July 8, 1924,	19.29
Aug. 7, 1923,	25.04
10-year pre-war average,	15.72

1924 to Date		1923
High, 2.789c., Jan. 15; low, 2.524c., July 22.	Finished Steel	High, 2.824c., April 24; low, 2.446c., Jan. 2.
High, $22.88, Feb. 26; low, $19.29, July 8.	Pig Iron	High, $30.86, March 20; low, $20.77, Nov. 20.

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minimum quotation, while on bars it developed a much lower figure than 2.15c., and is understood to have bought strips at less than 2.30c. Recalling the experiences of last spring when the large low priced automobile makers secured body sheets at $5 a ton below the then existing regular market price and the demands of other consumers for equally favorable treatment, some of the large producers of automobile sheets, fearing a loss of regular customers, have met the lower price at least for shipments to be made this month and next. Since the commoner finishes of sheets lately have been growing firmer due to the fact that fewer makers than recently now will take business at the recent low points, there is the unusual situation of the market moving in opposite directions at the same time.

Fairly substantial gains are noted this week in steel works operations in this and nearby districts, but they have been confined entirely to the independent companies, as the operating rate of the Steel Corporation subsidiaries are about where they were a week ago and the Carnegie Steel Co. actually is making less iron this week than recently through the suspension of three furnaces. One independent company which about a month ago was operating less than 40 per cent of ingot making capacity now claims to be operating above 70 per cent. General reports about steel works operations indicate an average of close to 50 per cent of capacity engaged. It is notable that open-hearth furnace capacity is gaining much more rapidly than that in Bessemer converters. Tin plate, pipe and bars for screw stock and bolts, nuts and rivets constitute the principal users for Bessemer steel and pipe is the most active of these lines, although demands are no strain upon capacity. Some companies stocked open-hearth steel during the recent slack period, but evidently find it cheaper to produce freshly against current demands than to draw from stock piles.

Activity still is lacking in the primary materials.

and the most cheerful thing that can be said is that prices are holding fairly well. When the test has been possible scrap has weakened slightly and ferromanganese has dropped $5 to $6 a ton further and now is $7.50 to $8.50 below the level of three weeks ago. This latter development, however, is due less to market conditions than to a price war between domestic and British producers.

Pig Iron.—Business again has lapsed into dullness and it is doubtful whether the total sales of the past week have aggregated as much as 1500 tons. Inquiries run entirely to single carloads, or at the best to about 100 tons, all for early delivery, and not much trouble has been experienced in selling such lots at recent prices. Producers claim that prices are at or below costs, and they cannot go lower, but the test in the shape of sizable inquiries is lacking. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnaces in June $20.144 against $21.143 in June, and basic $19 against $19.733 in June. Jones & Laughlin Steel Corporation has put on another furnace and now has six on iron and one on ferromanganese.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$19.00
Bessemer	20.00
Gray forge	$18.50 to 19.00
No. 2 foundry	19.00 to 19.50
No. 3 foundry	18.50 to 19.00
Malleable	19.00 to 19.50
Low phosphorus, copper free	26.00 to 27.00

Ferroalloys.—A price war among ferromanganese producers has caused a further drop of $5 in both domestic and British material. When British producers met the price named by an Eastern steel company of $105, Baltimore, domestic commercial producers went to $104. This was followed by a cut in the price of British makers to $100 and in turn by a cut to $99 by domestic commercial makers. The decline now amounts to $7.50 to $8.50 a ton and has been productive of little increase in business. Consumers in this and nearby districts are not badly in need of supplies and feel safe in staying out of the market, since there may be a further decline or in the event of a change in the other direction, they will have a chance to cover before the advance is made. Fair specifications against contracts for spiegeleisen are noted, but new business is slack; prices are unchanged. Interest in 50 per cent ferrosilicon is limited; leading producers still are quoting $75, delivered, but small makers are quoting $70 and it is believed would go lower to get orders. Prices are given on page 357.

Semi-Finished Steel.—Some increase is noted in releases on tonnages under contract, but there is no open market activity and those who usually contract for quarterly periods show little interest in their fourth quarter requirements. Most users of billets and slabs are carrying rather big stocks and what they now are specifying puts them in pretty comfortable shape based on the current demand for finished products. Sheet and tin plate business is not increasing in such fashion as to force either specifications or purchases. Makers generally are quoting these forms at $38, but they have been offered no tonnages of a size to tempt them to name a lower figure. The market is expected to settle to about $36 for billets for fourth quarter and to at least $37 for sheet bars, unless there is a decided stiffening in finished steel prices in the meantime. Such orders as are being placed for wire rods carry a price of $48; small lot orders are the rule and few, if any, of the makers are insisting on the size extra. Skelp is available at plate prices or from 2c. to 2.10c. Prices are given on page 357.

Wire Products.—Orders continue to gain, but they lack volume and are no tax upon capacity. Buyers merely are covering their real needs, which after a long period of abstemious buying naturally are greater than they were a short time ago. Mills are all making very prompt deliveries on orders and buying also lacks the stimulus of a possible advance in prices. Coated nails are selling as low as $2.20, base, per count keg, but in other directions there is good observance of recent prices. Quotations given on page 356 are applicable only in the area where Pittsburgh mills have an advantage over competing mills; elsewhere, delivered prices prevail and these will figure back to below quotations, when regular freight charges are deducted.

Steel Rails.—On light billet rails, 1.90c., base, no longer is minimum, as sales at 1.85c. are now reported. Demands are relatively few and mostly small, but the advantage is with the buyer because of the eagerness of makers for orders. Standard and light rail prices are given on page 356.

Tubular Goods.—Steady expansion is noted in orders for standard pipe and there is a good business in line pipe, although no large tonnages are involved in recent bookings. The Andean National Corporation, which some time ago asked for 350 miles of 10-in. pipe for South America, is expected to place the order soon. Concessions from quotations are being made on line pipe, especially on export business, but on standard and oil country pipe there is marked firmness to prices and less talk than recently of a possible revision downward. Oil country pipe still moves sowly, due to conditions in the oil industry and mills are making such prompt deliveries of this and standard pipe that there is not the rush to get on mill books there would be if deliveries were deferred. Inquiry for boiler tubes is reported as better, but the improvement is not of a kind to strengthen the price ideas of makers. Discounts are given on page 356.

Sheets.—While the common finishes appear to be somewhat stronger in price, due to the fact that fewer makers now are willing to go the recent minimums to secure business, the reverse is the case with automobile body sheets, in which there has been a sudden outburst of competition, that has produced sharply lower prices. It develops that the large maker of low-priced cars, tractors and trucks bought at 4.75c., base, instead of 4.95c. as first reported and mills serving other consuming interests to safeguard their customers have been going almost, if not fully, as low. Former maximum of 5.10c., base, has disappeared and even 5c., now quoted by the American Sheet & Tin Plate Co., is not regarded as obtainable with few other makers quoting above 4.90c. Sheet orders are increasing, but in rather gradual fashion, because good deliveries are made by all makers and this condition encourages buyers to keep purchases close to real needs. July bookings of independent companies are estimated at 15,000 tons over those for July of last year; that would mean roughly about 107,000 tons for last month, or about the same total as for June. Prices are given on page 356.

Tin Plate.—Business drags, pending more positive information as to the ultimate size of the packing crops. Both corn and tomatoes need warm nights lately absent to progress satisfactorily. Doubt about these crops means doubt about the use of considerable amounts of tin plate. There is no shortage of tin plate yet, this being patent in a very limited demand for stock items, which are wanted when can makers have underestimated their needs. Tin mill operations are below rather than above 50 per cent of capacity. Price is firm at $5.50 per base box, Pittsburgh, for standard coke tin plate.

Iron and Steel Bars.—The market shows comparative firmness on steel bars with 2.15c. base, Pittsburgh, the ruling quotation in this district. The orders, while fairly numerous, run entirely to small tonnages and there are fair specifications against contracts from the makers of cold-finished steel bars, whose business is somewhat better now than it was a short time ago. It is admitted by important producers that a lower price than 2.15c. might be developed by a sizable inquiry. About 1000 tons of reinforcing bars will be required for the stadium of the University of Pittsburgh, the general contract for which has been awarded the John F. Casey Co., Pittsburgh. Iron bar prices are holding at recent levels. Prices are given on page 356.

Structural Material.—Leading producers still are quoting 2.15c. base, Pittsburgh, on large structural shapes, but that price is being obtained rarely and only for small lots for quick delivery. On sizable tonnages the market is at 2c. About 1000 tons of struc-

tural steel will be required for the University of Pittsburgh stadium and there is about 800 tons of structural steel in the First National Bank Building, Youngstown, Ohio. The Mellon-Stuart Co., Pittsburgh, has the contract for the latter. Plain material prices are given on page 356.

Plates.—A number of mills still are religiously quoting 2.15c. base, but it is admitted that no real orders can be obtained that high. As a matter of fact, 2c. appears to be the price at which most sales have taken place and a central Pennsylvania company is reported as the successful bidder on 1250 tons for shipment to Warren, Pa., its price being 1.85c., Pittsburgh. Prices are given on page 356.

Cold-Finished Steel Bars and Shafting.—Shafting still is slow, but there is a pretty constant expansion in screw stock business, chiefly, however, in releases against old contracts. The interesting feature of the demand is that it is from a wide variety of sources, including some from the makers of agricultural implements. Jobbers are not buying very far ahead, as makers are giving good shipment service and the tendency is to let them carry the stock. Prices are well maintained at 2.80c., base, Pittsburgh or Chicago, for drawn, rolled, polished and turned bars and at 3.20c., base, f.o.b. mill for ground shafting, these prices being for carload lots, although named to carload lot buyers taking less than a carload. The extras for less than carload lots apply only to buyers who never buy any other way. Prices are given on page 356.

Track Supplies.—Business in this territory is very light, railroads tributary to Pittsburgh showing much less interest in supplies than those in the West. Lacking the test of real demand, prices are merely nominal. They are given on page 356.

Fluorspar.—Demand is very limited in this district and evidently must be the same in other districts, since Illinois and Kentucky producers who have been quoting $22 for 80 per cent and $23.50 for 85 per cent calcium fluoride, now are meeting competition.

Hot-Rolled Flats.—Prices are very indefinite and while the common quotation is 2.60c. on hoops and bands and 2.50c. on strips wider than 3 in., these quotations are merely nominal ones and apply on a rather small percentage of business. Net prices are quoted by some mills on sizes where the extras run large and where a large tonnage is involved, as in the case of a large maker of low priced automobiles, there is close figuring of mill costs and a price to correspond. Prices are given on page 356.

Cold-Rolled Strips.—This product still is quoted by mills in this district at 4.25c. to 4.50c. base, but the lower figure is a more common one on ordinary inquiries and it is believed to have been considerably modified on some recent Detroit business running into fairly large tonnage.

Bolts, Nuts and Rivets.—Bolt and nut prices appear to be somewhat firmer than they have been and deviations from published discounts are not so frequent as they were a short time ago. The rivet market still is weak and on desirable business in large rivets carrying large extras, there have been quotations as low as $2.40 base. Prices and discounts given on page 356.

Coke and Coal.—The coke market remains dull and narrow. Production in the Connellsville district is low, but offerings from that district are ample for all requirements and prices are just about steady. Standard furnace grade holds at $3 per net ton at ovens for spot delivery and it is believed that this price would interest producers for fourth quarter contracts. No negotiations for tonnages for that period are noted. Spot foundry coke still takes a range of from $4 to $4.50, with most of the sales at the lower price. Business in coal shows some improvement, but that cannot be said of prices, which still are easy. We quote mine run steam coal from $1.50 to $1.75; mine run coking coal from $1.60 to $1.75 and mine run gas coal from $1.85 to $2, all f.o.b. mines. Steam slack is available at $1.15 to $1.25 and gas slack from $1.25 to $1.35.

Old Material.—The deadlock between dealers and melters still is unbroken, and there is no reason to change prices materially from those of the past few weeks. Dealers with yard stocks are unwilling yet to let go and the mills cannot see their way clear to paying the prices demanded for yard material. Not much scrap, except what is in dealers' yards, is available, but with so little wanted it is difficult to put up prices on the factor of supply alone. Dealers figure they must get close to $20 on heavy melting steel to turn over yard stocks at a profit, while present ideas of mills that constitute a possible outlet are right around $17.50 for that grade. Pickup tonnages can be had at the latter figure and some shipments recently made to Steubenville without orders were taken in at that price.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$17.50 to	18.00
No. 1 cast, cupola size	$18.00 to	18.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.50 to	19.50
Compressed sheet steel	16.00 to	16.50
Bundled sheets, sides and ends	14.50 to	15.00
Railroad knuckles and couplers	20.00 to	20.50
Railroad coil and leaf springs	20.00 to	20.50
Low phosphorus blooms and billet ends	21.50 to	22.00
Low phosphorus plate and other material	20.50 to	21.00
Railroad malleable	16.00 to	16.50
Steel car axles	20.00 to	20.50
Cast iron wheels	16.50 to	17.00
Rolled steel wheels	20.00 to	20.50
Machine shop turnings	14.00 to	14.50
Sheet bar crops	18.00 to	18.50
Heavy steel axle turnings	15.00 to	15.50
Short shoveling turnings		14.00
Heavy breakable cast	15.00 to	15.50
Stove plate	13.50 to	14.00
Cast iron borings		14.00
No. 1 railroad wrought	15.00 to	15.50
No. 2 railroad wrought	18.00 to	18.25

Youngstown Company Advances Its Basic Price at Chicago

YOUNGSTOWN, Aug. 5.—The Youngstown Sheet & Tube Co. has advanced its price of basic pig iron at Chicago 50c. per ton, from $20 to $20.50, and will shortly make another 50c. advance to $21. Increasing demand in the Western district is responsible for this action, and the company plans to place another blast furnace at its Chicago plant in operation at an early date.

A sales executive states the demand for sheets and small sized pipe has shown appreciable betterment lately, in comparison with other finished steel lines.

The Milwaukee plant of the Massey Concrete Products Corporation and the concrete post business have been purchased by the George Cutter Co., South Bend, Ind., a subsidiary of the Westinghouse Electric & Mfg. Co. The Massey corporation has been engaged in the manufacture of reinforced concrete street-lighting standards and concrete poles for street railway service. The purchase rounds out the line of the George Cutter Co., which for a number of years has manufactured cast-iron poles for industrial, ornamental and street-lighting purposes.

The United Engineering & Foundry Co., Pittsburgh, points out that the first rails made back in 1808 were of an entirely different cross-section than those of today. Then they were rectangular in shape and the weight was only 19 lb. per yard, but as the loads and speeds of the traffic increased, the rails necessarily increased also, until at the present time 135 lb. per yard rails are used extensively. An average of 20 passes are required to roll a rail from the ingot to the finished product, the minimum being 15 and the maximum 35.

Chicago

Continued Improvement in Finished Material —Pig Iron Firmer

CHICAGO, Aug. 5.—Stimulated particularly by car and fabricating awards, the iron and steel market shows further improvement. The change which set in the last week of July is gradually becoming more decided and manufacturers believe that the betterment is of a definite character and will continue until business has taken on a good volume. The improvement is reflected in practically all lines, though some of them still are weak, among them being plates, but this product has a better tone now that the railroads are coming into the market more actively for equipment. Scrap, pig iron, and most of the finished lines have a stronger tone and there have been some price advances in old material.

Operations practically are unchanged, with prospects of increased production provided the present tendency toward greater inquiries and orders prevails. Ingot production in this district is from 40 to 42 per cent of capacity, while 12 out of 30 blast furnaces are blowing, the same number as last week. Fabricating awards reported approximate 8000 tons and the total actually placed, counting scattering lots, is estimated to run well over 10,000 tons. The largest car order involved 1000 automobile cars and 1950 refrigerator cars. It was placed among several builders by the Missouri Pacific Railroad and will call for about 30,000 tons of steel. The Illinois Central closed for 3000 to 4000 tons of tie plates. There is considerable tonnage involved in pending inquiries for track material and producers expect the railroads to come into the market more heavily soon and place good business, especially for rails and track material. The railroads are reported to feel that prices now have become more stable and that bottom has been reached. Agricultural implement makers are buying steel bars more freely and the market for wire products is more satisfactory. While prices of pig iron are unchanged, they are firmer, as shown by transactions closed the past week. The stronger tone of local iron, however, has resulted in Southern iron coming into this district more freely.

Ferromanganese.—Domestic ferromanganese has declined $6 per ton in price and is now quoted at $99, seaboard, or $106.56, delivered. While no announcement has been made here as to the price of foreign alloy, it is expected it will be reduced to the domestic level. An order for 500 tons of this alloy was placed here last week at $100, seaboard. Inquiry is light and chiefly involves car lots.

We quote 80 per cent ferromanganese, $106.56, delivered; 50 per cent ferrosilicon, $75, delivered; spiegeleisen, 18 to 22 per cent, $39.56, delivered.

Pig Iron.—With local iron becoming firm at $20, base, furnace, consumers are showing more interest and have come into the market the past week for a round tonnage. Some producers say that indications point to an advance in price for fourth quarter delivery. The stiffer tone of local iron, however, has permitted larger sales of Southern iron, although but little of it came into the city of Chicago. Scattering lots of Alabama iron, one of them involving 500 tons, were sold in the district last week on a basis of $18, furnace. The range on Southern iron quotation is from $18 to $18.50, furnace. An inquiry from a consumer in Wisconsin calls for 1000 tons of high silicon iron, for delivery over the remainder of the year. A melter in the Chicago district is inquiring for 500 tons of basic, established at $20, furnace. A local producer has booked 225 tons of high silicon iron. An inquiry is out for 150 tons of charcoal iron, the market for which is quiet and is quoted at $26, furnace. There is a fair movement of malleable iron, selling at $20, furnace, some of the shipments representing releases. The market for low phosphorus and silveries is unchanged and dull. One local furnace interest reports a larger business in July than in June.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$20.00
Northern No. 1 foundry, sil. 2.25 to 2.75	20.50
Malleable, not over 2.25 sil.	20.00
Basic	20.00
High phosphorus	20.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	22.18
Southern No. 2, sil. 1.75 to 2.25	24.01
Low phos., sil. 1 to 2 per cent, copper free	32.29
Silvery, sil. 8 per cent	$34.29 to 35.29
Electric ferrosilicon, 14 to 16 per cent	43.42

Plates.—The Missouri Pacific Co. has awarded contracts for 1000 automobile cars for itself and for 1950 refrigerator cars for its subsidiary, the American Refrigerator Transit Co., involving approximately 30,000 tons of steel. The active buying of railroads has stimulated the market somewhat and it has become slightly firmer, though it remains weak. Demand is comparatively light and quotations still take a range of 2.15c. to 2.20c., Chicago, depending on the size of the orders.

The mill quotation is 2.25c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Structural Material.—Fabricators report improvement in the market. While it remains quiet, more interest is being manifested by users through both orders and inquiries. The prevailing quotation remains at 2.25c., Chicago, but concessions continue to be quoted. Awards during the past week approximate 8000 tons, representing a sharp increase over the previous week. Inquiries have increased and a number of large pending requirements are expected to be closed soon. Among the latter are the Morrison Hotel addition, Chicago, involving about 6000 tons and the First National Bank addition, Chicago, involving about 2000 tons, both of these having come out in the form of specific tonnage requirements the past week, though the business has been pending for some time. The improved bookings for plain material are regarded as showing a market turn. It apparently is the conviction of some purchasers that prices have scraped bottom. This is inferred partly from the fact that awards are about to be made to fabricators for work that will not begin until next year.

The mill quotation on plain material is 2.25c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bars.—Agricultural implement interests have come more freely into the market and are buying soft steel bars in larger quantities. The tendency has been to stiffen the price situation. Quotations are firmer at 2.15c., Chicago. Bookings have been improving for several weeks and showed an increase last week over the one previous. The better agricultural outlook in the West has been a helpful influence. Deformed steel bars are quoted by mills for 2.10c., Chicago, for this territory, but 2c., Chicago, is available outside where competition is keen. The market for bar iron is unchanged at 2.20c., Chicago, and is dull. Alloy steel bars are in somewhat better demand owing to slightly heavier requirements from the automobile industry. No change is noted in the market for rail steel bars, which still are quoted at 2.10c., mill.

Mill prices are: Mild steel bars, 2.15c.; common bar iron, 2.20c., Chicago; rail steel, 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and 4.30c. for flats, squares and hexagons; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.30c. to 2.35c.

Sheets.—The market for sheets continues to gain strength. Except in isolated cases, it is reported that price concessions are less frequently made. Buying is not heavy, but orders are increasing and come from

miscellaneous sources. Mill operations remain unchanged, but manufacturers think the betterment in demand will soon make it necessary to increase the rate of production. Prices are unchanged.

Mill quotations are 3.50c. to 3.65c. for No. 28 black, 2.70c. to 2.80c. for No. 10 blue annealed, and 4.60c. to 4.80c. for No. 28 galvanized, all being Pittsburgh prices subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote f.o.b. Chicago: 3.80c. for blue annealed; 4.50c. for black, and 5.50c. for galvanized.

Hot-Rolled Strip.—Business is only moderate, but inquiries are increasing slightly. The automobile industry is buying on a small scale and other consumers are showing slightly more interest in the market. The quotation on hot-rolled strip steel remains unchanged at 2.75c., Chicago.

Cold-Finished Steel.—While demand for cold-finished steel is light, it continues to show improvement. The price appears to be well stabilized at 2.80c., Chicago.

Wire Products.—All lines of wire products showed improvement the past week. Increased orders are reported as coming from the Northwest, Middle West and Southwest, and arise from miscellaneous sources. Operations remain as they have been and deliveries continue to be prompt. Prices also are unchanged. For mill prices see finished iron and steel, f.o.b. Pittsburgh, page 386.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, $3.70 per 100 lb.; extra for black annealed wire, 15c. net 100 lb.; common wire nails, $3.55 per 100 lb.; cement coated nails, $2.80 per keg.

Rails and Track Supplies.—Notable improvement in demand for track supplies has developed. The Illinois Central Railroad has purchased between 3000 and 4000 tons of tie plates from the Sellers Mfg. Co., Chicago. The rail order recently placed by the Norfolk & Western Railroad involved 47,500 tons, of which 37,000 tons went to the Carnegie Steel Co. and 10,500 tons to the Bethlehem Steel Co. This railroad now is in the market for 12,000 kegs of spikes. The quotation on the standard grade in this district varies from 2.80c. to 3c., mill, depending on the size of the orders. Inquiries for track fastenings are rather numerous. Producers say there are definite indications that the railroads expect to come into the market still more freely in the near future, especially for rails, spikes and track fastenings. Good sized orders for stock material are now being placed. It is believed that the railroads feel that prices will not go lower and having become stabilized, they are about to take tonnages to fill requirements.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 2.10c., f.o.b. makers' mill.

Standard railroad spikes, 2.80c. to 3c. mill; track bolts with square nuts, 3.80c. to 4c. mill; steel tie plates, 2.45c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.65c. base, and track bolts, 4.65c. base.

Bolts and Nuts.—Additional specifications against contracts for bolts and nuts have come to producers in this district the past week from agricultural implement interests. They involve fair sized lots. While prices are unchanged, they are firmer. Operations remain at practically 40 per cent of capacity. More inquiries also are coming from automobile manufacturers, but it is not expected they will develop into business in large volume before fall.

Jobbers quote structural rivets, 3.65c.; boiler rivets, 3.85c.; machine bolts up to ⅞ x 4 in., 60 per cent off; larger sizes, 60 off; carriage bolts up to ⅞ x 6 in., 55 off; larger sizes, 55 off; hot pressed nuts, squares and hexagons, tapped, $4 off; blank nuts, $4 off; coach or lag screws, gimlet points, square head, 65 per cent off.

Reinforcing Bars.—Inquiries for reinforcing steel bars are quite numerous but generally represent only small lots, while tonnage placed has involved light requirements. The principal quotation on the larger inquiries is 2.30c., Chicago warehouse, with 2.35c. obtained for the smaller inquiries and some warehouse interests quote 2.40c. on small lots. It is persistently reported that business calling for good sized tonnage still is available at 2.25c. The trade reports that a great deal of business is being held in abeyance and may develop in the near future. Lettings include:

Apartment, Atwater and Prospect streets, Milwaukee, 125 tons, to the American System of Reinforcing.

Wisconsin Hotel Addition, Milwaukee, 150 tons, to the American System of Reinforcing.

Roberts Street Bridge, St. Paul, 200 tons, to the Kalman Steel Co.

Marine Corps Supply Depot, San Francisco, 1130 tons, to Reinforced Concrete Steel Co.

Cast Iron Pipe.—Makers of cast iron pipe report that business is more encouraging. There is greater quick buying for small quantities than is usual at this time of the year and these tonnage requirements almost make up for the larger business generally prevalent at this period, but now absent. Prices are unchanged. Dayton, Ohio, has awarded 200 tons of 16-in. pipe to the United States Cast Iron Pipe & Foundry Co. Bids will be opened tomorrow for 400 tons of 6-in. pipe for St. Paul.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $58.20; 6-in. and over, $54.20; Class A and gas pipe, $5 extra.

Old Material.—The market for several grades of scrap has advanced as the result of actual transactions and it is sentimentally stronger throughout. It still is largely a speculative market, however, and no large buying movement is expected to develop for 30 days or more. The betterment in the steel situation has given an improved tone to the scrap market. Stocks at mills are reported to be rather small, while tonnages of prepared sizes in the hands of dealers are only fair. Demand for foundry grades continues to be dull. A local steel interest during the past week closed for 5000 tons of heavy melting steel at $15.50, delivered. Dealers are reluctant to sell freely and are holding stocks for some of the more desirable grades as much as possible and fill only the immediate needs of their customers. They are bidding higher prices for railroad scrap and some levels paid are said to equal or exceed prices offered by mills. The Chicago & Northwestern Railroad closed bids last Friday for 5000 tons and the Pennsylvania Railroad will close tomorrow on 31,000 tons. The New York Central and Michigan Central each has sent out blind lists. The Pere Marquette has issued a list involving 2100 tons, of which 800 tons is old rails.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	$17.50 to $18.00
Cast iron car wheels	17.00 to 17.50
Relaying rails, 56 and 60 lb.	26.00 to 27.00
Relaying rails, 65 lb. and heavier	27.00 to 32.00
Forged steel car wheels	17.50 to 18.00
Railroad tires, charging box size	18.00 to 18.50
Railroad leaf springs, cut apart	18.00 to 18.50
Rails for rolling	16.25 to 16.75
Steel rails, less than 3 ft.	17.00 to 17.50
Heavy melting steel	15.50 to 16.00
Frogs, switches and guards cut apart	15.25 to 15.75
Shoveling steel	15.00 to 15.50
Drop forge flashings	10.25 to 10.75
Hydraulic compressed sheets	12.00 to 12.50
Axle turnings	12.00 to 12.50
Steel angle bars	16.50 to 17.00
Steel knuckles and couplers	17.75 to 18.25
Coil springs	19.00 to 19.50
Low phos. punchings	15.50 to 16.00
Machine shop turnings	9.00 to 9.50
Cast borings	10.50 to 11.00
Short shoveling turnings	10.50 to 11.00
Railroad malleable	17.00 to 17.50
Agricultural malleable	16.00 to 16.50
Per Net Ton	
Iron angle and splice bars	16.00 to 16.50
Iron arch bars and transoms	17.00 to 17.50
Iron car axles	24.00 to 24.50
Steel car axles	17.00 to 17.50
No. 1 busheling	11.25 to 11.75
No. 2 busheling	8.25 to 8.75
Pipes and flues	10.00 to 10.50
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	13.50 to 14.00
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	16.50 to 17.00
No. 1 agricultural cast	16.50 to 17.00
Locomotive tires, smooth	16.00 to 16.50
Stove plate	14.00 to 14.50
Grate bars	14.50 to 15.00
Brake shoes	14.50 to 15.00

New York

More Interest in Forward Needs—Nails Weak and Plates Lower

NEW YORK, August 5.—The principal transaction in pig iron last week was the purchase of about 15,000 tons by one company. The details were carefully guarded. Other transactions amounted to about 10,000 tons, with none of special significance. An inquiry for 4000 for Port Chester, N. Y., which had been sent out two or three weeks ago, is still pending, and the buyer seems to have difficulty in obtaining quotations desired. A New Jersey foundry is in the market for about 600 tons of No. 2 plain and No. 1X, and a Connecticut foundry for 400 tons of No. 2X. In eastern Pennsylvania $20 can still be done on No. 2 plain, but $20.50 is more common. On Buffalo iron, $18.50 is the minimum, with $19 being more generally asked. Quotations for fourth quarter are being more freely made by furnaces.

We quote delivered in the New York district as follows, having added to furnace price $2.27 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$22.27 to $22.77
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	23.27 to 23.77
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.77 to 23.27
Buffalo, sil. 1.75 to 2.25	23.91
No. 2 Virginia, sil. 1.75 to 2.25	28.44 to 29.44

Ferroalloys.—Another reduction in the price of British ferromanganese was made the middle of last week, and the quotation is now $100 per ton, seaboard. Immediately following this domestic producers offered the alloy on a basis of $99, seaboard, and these two quotations now rule the market. While demand is not plentiful, there have been fairly liberal sales of both British and domestic alloy, the total aggregating 2000 to 2500 tons, all at the new price levels. There are inquiries before the market for at least 500 tons.

Cast Iron Pipe.—In all probability, 1924 will prove to have been a year of light buying by municipalities in New England, unless the second half of this year shows a sudden increase in calls for bids from this section. Private purchasing by water and gas companies in New Jersey, New York and northern Pennsylvania continues fairly active and prices are unchanged. The Department of Water Supply, Gas and Electricity, City of New York, has awarded two contracts to a local contractor, involving a few hundred tons of water pipe. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $60.60 to $61.60; 4-in. and 5-in., $65.60 to $66.60; 3-in., $75.60 to $76.60, with $5 additional for Class A and gas pipe. Weakness continues pronounced in the soil pipe market. Only light tonnages are being booked by makers and prices have again declined. We quote discounts of both Southern and Northern makers, f.o.b. New York, as follows: 6-in., 50 to 55 per cent off list; heavy, 60 to 65 per cent off list.

Warehouse Business.—There has been no increase or decrease in the volume of business as a whole. Demand for structural material is reported by some warehouses to have shown a slight increase. Black and galvanized sheets are unchanged at 4.60c. per lb. base for the former and 5.60c. per lb. base for the latter. While the firmness in galvanized is the result of a fairly active demand, black sheets would probably be inclined to weaken were it not for the narrow margin of profit based on current mill prices. Sellers of wrought iron and steel pipe report a fair demand, which is, however, considerably below the usual requirements of the season. There is still a slight tendency to weakness in some quarters. Tin plate has declined in price on cokes but has been increased in price on the higher qualities of charcoal. Brass and copper products are up ½c. per lb. We quote prices on page 370.

Finished Iron and Steel.—The indications are that an increased number of buyers are considering forward purchasing. The development is one of passing from buying for immediate needs to one of considering forward requirements. Whereas not long ago it was difficult to interest jobbers and consumers in such buying, now a willingness to order is evidenced, the deterrent being an effort to secure lower than ruling prices. With a number of sellers, August promises to be better than July in volume of bookings; but while buyers are conditioning purchases in part on the basis of price concessions, few signs are to be found of intention to reduce prices. Wire nails are weak and irregular and lower prices have been named in steel plates, but generally there is as yet no active searching between buyer and seller for a buying basis. A large amount of structural steel work was put under contract and a great volume of steel building construction still is under active consideration, pointing to sustained activity for some months. Steel plates are now easily obtained at a basis of 1.80c., Pittsburgh, while some sizable lots have been sold at a 1.75c. basis and 1.70c. has been done. It seems likely that a lot attractive from the mill standpoint can now be bought at 1.70c. Some renewal of activity is noted in the general demand for forgings, especially drop forgings, but miscellaneous railroad demand is exceptionally light. The general impression of the market is that buying will continue on a slightly increased scale with possibility of occasional dips in price, in spite of low stocks in consumer and jobber hands, so lean are mill order books.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.49c. to 2.54c.; plates, 2.04c. to 2.14c.; structural shapes, 2.34c. to 2.44c.; bar iron, 2.44c.

Coke.—Prices are reported firm, although demand is light. Buyers are beginning to show interest in coke for delivery over the remaining months of this year and even into next year. A fair range of the present market on standard foundry is $4.25 to $5.25, with some distress tonnage at $4 and on standard furnace $3.25 to $3.50 per ton. By-product is unchanged at $10.41, Newark and Jersey City, N. J.

Old Material.—Heavy melting steel has registered an advance of 50c. per ton and is now being bought by dealers and brokers at $15.50 to $16 per ton, delivered to consumers in eastern Pennsylvania. Competition for tonnage is apparently keen and although some contracts are at a price sufficient to provide a profit to the dealer, much of the business is still being done in fulfillment of contracts at the same or lower than the buying price. Other grades of scrap show the same upward tendency. Stove plate is now being bought at $15 per ton, delivered Harrisburg and Phoenixville consumers, but is unchanged for delivery to a New Jersey consumer with a $2.02 freight rate. Heavy breakable cast is stronger with $16.50 being paid in some cases. Borings and turnings continue quiet with $10.50 to $11 per ton a fair estimate of the buying price, delivered eastern Pennsylvania, $13.25 per ton, delivered Scottsdale and $12 per ton, delivered Riddlesburg, offered by some dealers and brokers. Iron and steel car axles both show greater strength. Machine shop turnings are quotable at $12.75 to $13 per ton delivered to eastern Pennsylvania consumers. Specification pipe is unchanged at $16 per ton, delivered Lebanon or Milton, Pa. In addition to shipments to eastern Pennsylvania consumers, heavy melting steel has been shipped to a Buffalo plant at $17 per ton.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$12.00 to $12.50
Heavy melting steel, railroad or equivalent	12.50 to 13.00
Rails for rolling	14.25 to 14.75
Relaying rails, nominal	24.00 to 25.00
Steel car axles	17.50 to 18.50
Iron car axles	24.00 to 25.00
No. 1 railroad wrought	14.50 to 15.00
Forge fire	8.75 to 9.25
No. 1 yard wrought, long	13.50 to 14.00
Cast borings (clean)	8.75 to 9.25
Machine-shop turnings	9.00 to 9.50
Mixed borings and turnings	7.50 to 8.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.75 to 12.25
Stove plate	11.25 to 11.75
Locomotive grate bars	11.50 to 12.50
Malleable cast (railroad)	14.00 to 14.50
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	12.25 to 12.75

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$15.00 to $15.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	13.00 to 13.50
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

Buffalo

Continuing Activity in Pig Iron—Finished Steel Improving—Scrap Market Active

BUFFALO, Aug. 4.—Pig iron makers note a continuance of last week's healthy inquiry, a total of 20,000 tons being recorded again this week. The General Electric Co. is known to have placed a portion of its inquiry with a local furnace. So far the Massey-Harris inquiry of 2500 to 3000 tons, listed last week, is reported unplaced and nothing is known locally of the disposal of the Abendroth inquiry, also reported last week and totalling 4000 tons, though it is believed to have been placed. New inquiries this week include a 1500-ton foundry lot from this district which has been placed with a local maker and a 2000-ton lot of foundry believed to be still unplaced. A 1000-ton lot, several 500-ton lots and a 400-ton lot also are listed in the inquiries of the week. One local maker announces he is out of the market on the high-silicon iron, including 2.25 to 2.75 per cent content. The selling is believed to total somewhere about 15,000 tons, including the booking of one local maker—8000 tons. Another interest accepted 3000 tons altogether, in small lots. The ruling price, in spite of reports from elsewhere that the Buffalo market is weaker, seems to be $19 base. Tonawanda Iron Corporation, subsidiary of the American Radiator Company, has purchased 200,000 tons of iron ore and preparations are being made for the blowing-in of the rebuilt Tonawanda stack. This will occur, according to latest reports, about Oct. 1.

We quote f.o.b., gross ton Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$18.50 to $19.00
No. 1 foundry, sil. 2.75 to 3.25	19.00 to 19.50
No. 2 foundry, sil. 2.25 to 2.75	19.00
Basic	19.00
Malleable	19.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—The market is distinctly improved, with more inquiries and more tonnage. Inquiry is not improved so much in the matter of size as it is in the matter of volume. The 100-ton and 200-ton lots of plates, shapes and bars, while not common, are occurring more frequently than for the past few months. Structural shape inquiry and bar inquiry especially are improved. Jobbers' stocks are apparently low and any little flurry of buying that they encounter causes them to increase their specifications. Nothing is heard of 2.15c. being shaded on these commodities. Pipe business is better, especially for the smaller sizes. Reinforcing bar business shows an improvement. Between 2000 and 3000 tons of roadwork is up for quotations and nearly 1000 tons in the aggregate of structural bars. Automobile plants have been inquiring for sheets, improving the market. The going price is 3.50c. for black. While no actual step has been taken so far as is known, it is believed local mills are considering the effect of discontinuing "Pittsburgh plus" prices.

Steel bars, 3.30c.; iron bars, 3.35c.; reinforcing bars, 3.30c.; structural shapes, 3.40c.; plates, 3.40c.; No. 10 blue sheets, 4.05c.; No. 28 black sheets, 4.75c.; No. 28 galvanized sheets, 5.85c.; bands, 4.05c.; hoops, 4.40c.; cold finished rounds, 4.20c.; cold-finished shapes, 4.70c.

Old Material.—Continuance of the better feeling in the scrap market and activity on the part of local dealers is noted. All of the mills are showing interest and all are reported to have done some quiet buying. While the present movement, at the outset, had the appearance of a flurry among dealers with the market accordingly based on their activity, it has since shown more sound development and some buying is going on in almost all the grades and the dealers are not doing all of it. Eastern Pennsylvania has opened up and is inquiring in Buffalo district for scrap, as are Youngstown and Pittsburgh users. The tendency of dealers who have orders is to cover as quickly as possible. Dealers have low stocks and mills are reported to have stocks suitable only for the present low rate of operation and not capable of sustaining the open-hearths for any prolonged period. The McKinney Steel Co. contract with the New York Central for the product of its lists is taking a large quantity of scrap monthly out of this district, and this is being felt. Dealers say that it is impossible now to buy a tonnage of heavy melting steel under $16.50 to $17, but users who are more conservative, and who profess to see in the present activity only a "bulge" in the market, say that a tonnage could probably be bought around $15.50 to $16, if necessary.

We quote f.o.b., gross ton, Buffalo, as follows:

Heavy melting steel	$16.00 to $16.50
Low phos., 0.04 and under	18.00 to 18.50
No. 1 railroad wrought	14.00 to 15.00
Car wheels	17.50 to 18.00
Machine shop turnings	11.00 to 11.50
Cast iron borings	12.00 to 12.50
No. 1 busheling	14.50 to 15.50
Stove plate	16.00 to 16.25
Grate bars	15.00 to 15.50
Bundled sheets	12.00 to 12.50
Hydraulic compressed	15.50 to 16.00
Railroad malleable	17.00 to 18.00
No. 1 machinery cast	17.00 to 18.00

Cincinnati

Increased Activity in Pig Iron—Slight Shading at Ironton

CINCINNATI, Aug. 5.—The pig iron market is showing increased activity, and close to 10,000 tons was sold to consumers in this district last week, about equally divided between Northern and Southern irons. The largest tonnage reported was 3000 tons of Southern, for water and rail shipment, to a radiator interest. A nearby smelter bought 1000 tons of Northern foundry and an allied interest another 1000 tons, and it is reported that a slight shading of the $19.50, Ironton, price was done on the inquiry. Other sales included one of 600 tons of Southern to a Louisville melter, one of 500 tons of Northern to a central Ohio melter and several ranging from 200 to 400 tons of both Northern and Southern. Prices are practically unchanged from last week, $17.50 to $18 being the range on Southern irons, with the greater part of the tonnages being booked at $18. A Tennessee furnace having a freight advantage in this district will accept spot shipment orders at $17.50, and it is said that an attractive tonnage can also be booked with Alabama interests at the same price. In the North, $19.50 is being fairly well maintained, though in some cases a shading of 10c. per ton was done to meet outside competition. Sales of silvery iron are now being made on the basis of $29.50 for 8 per cent, though no announcement of reductions have been made by producers. A round tonnage of basic is reported to have been bought by a melter in this district at $19, Ironton. While inquiries continue light, melters are evincing more interest in the market, and more buying is looked for.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Southern fdy., sil. 1.75 to 2.25 (base)	$21.55 to $22.05
Southern fdy., sil. 2.25 to 2.75	22.05 to 22.55
Southern Ohio silvery, 8 per cent	31.77
Southern Ohio fdy., sil. 1.75 to 2.25	21.77
Southern Ohio basic	21.27
Southern Ohio malleable	21.77

Finished Materials.—Sales are improving gradually, each week being better than that preceding. Prices also appear to be stiffening. Several weeks ago no difficulty would have been experienced in placing a small tonnage of plates at 2c., but a manufacturer with an order for 1110 tons to place is reported to be having considerable difficulty in securing less than 2.10c. for shipment into this district. The same is true of shapes, and it does not appear that any of the larger companies are going below 2.05c. on the business offering. Bars are being firmly held at 2.15c. and, while orders are not heavy, there is a fair run of business. Wire products are in light demand, with no price changes noted, wire nails being quoted at $2.85 and plain wire at $2.60. Carload orders for track accessories are more numerous, but no orders for small spikes or light rails are coming from the coal mining districts.

Sheets.—There is a fair volume of orders, but nothing large. However, the demand is better than it

has been, though prices are still weak. The market price today is generally regarded as 2.60c. for blue annealed, 3.40c. for black and 4.50c. for galvanized. Automobile body sheets are quoted at 5c.

Structural Activity.—The Louisville & Nashville Railroad is in the market for two bridges involving 2300 tons of steel. A number of other projects are also up for bids and, while awards are light, several projects will be let this week involving considerable tonnage. A stiffening of fabricating prices is reported, the extremely low quotations of several weeks ago having disappeared.

Reinforcing Bars.—Demand for small tonnages is considerably improved, but large projects are not numerous. Due to a legal decision on the erection of a large apartment building proposed for a Cincinnati residential zone, declaring that the work cannot proceed, it is expected that a number of other large projects for which permits had been granted before the zoning ordinance became effective will be held up temporarily. An addition to a hotel at French Lick, Ind., requires 300 tons of bars. Prices of bars vary. An attractive order for rail steel bars can be placed at 1.90c., mill, with smaller tonnages at 2.10c. New billet stock is quoted at 2.15c.

Warehouse Business.—Local jobbers of steel products report the demand steadily improving and are looking for this to continue. July sales were considerably ahead of June totals, and the first few days of August were fairly active, and lead to the opinion that better business will continue. Jobbers of wire products report improvement slight. Prices are unchanged from last week.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.05c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, 3.30c.; common wire nails, $3.30 per keg base; cement coated nails, $3 per keg.

Fluorspar.—The market is showing more life, and we note one sale of 300 tons, with inquiries totaling 500 tons. Recent published prices are not holding, and cuts of $4 per ton have been made by some producers, partly to meet foreign competition, and partly to stimulate demand. Prices are given on page 357.

Coke.—A sale of 4000 tons of Wise County foundry coke is reported at around $5.25, ovens. The market generally is more active, but demand continues to run to small tonnages for immediate shipment. A Tennessee furnace interest is reported to have purchased 4000 tons of Wise County furnace coke at $3.75 ovens.

Connellsville furnace, $3; foundry, $4.50; New River foundry, $8.50; Wise County furnace, $3.75; foundry, $4.50; by-product foundry, $6.50, Connellsville basis.

Old Material.—There is little consumer activity, but dealers continue to buy at current prices. Yard materials are being held for higher prices, which are expected to develop within the next 30 days. Chicago and St. Louis dealers are reported to have paid high prices for materials offered by railroads serving the St. Louis district. Locally no changes have been made.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$13.00 to $13.50
Scrap rails for melting	12.00 to 12.50
Short rails	17.00 to 17.50
Relaying rails	28.50 to 29.00
Rails for rolling	14.00 to 14.50
Old car wheels	13.00 to 13.50
No. 1 locomotive tires	14.00 to 14.50
Railroad malleable	15.50 to 16.00
Agricultural malleable	14.00 to 14.50
Loose sheet clippings	8.50 to 9.00
Champion bundled sheets	10.50 to 11.00
Per Net Ton	
Cast iron borings	9.50 to 10.00
Machine shop turnings	8.50 to 9.00
No. 1 machinery cast	18.00 to 18.50
No. 1 railroad cast	14.50 to 15.00
Iron axles	21.00 to 21.50
No. 1 railroad wrought	10.50 to 11.00
Pipes and flues	7.50 to 8.00
No. 1 busheling	9.50 to 10.00
Mixed busheling	7.00 to 7.50
Burnt cast	10.50 to 11.00
Stove plate	10.50 to 11.00
Brake shoes	11.50 to 12.00

Birmingham

Encouraging Inquiries for Pig Iron but Few Sales Are Recorded

BIRMINGHAM, ALA., Aug. 5.—Inquiries for pig iron have been received from the Central West territory, though no business resulted, quotations taking on a little more firmness, $18 being more general for No. 2 foundry. Blowing out of the city furnace by the Sloss-Sheffield Steel & Iron Co. to permit of repairing and also as part of a plan to regulate supply and demand, will be followed by other companies shortly.

We quote per gross ton, f.o.b. Birmingham district furnace as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$17.50 to $18.00
No. 1 foundry, 2.25 to 2.75 sil.	18.00 to 18.50
Basic	18.50 to 19.00
Charcoal, warm blast	31.00

Steel.—The steel market in the South appears a little off, but operations continue as they have been for the past several weeks. Steel Corporation subsidiary plants show no deviation in the pace that has been on as a general proposition, the changes being in departmental operations. In the long run, however, the production continues on about an 85 to 90 per cent capacity. Gulf States Steel Co. operations are around 50 per cent. Welded tanks are in a little better demand and local manufacturers announce negotiations on for a considerable tonnage, tanks ranging in size up to 18,000 gallons capacity being ordered in numbers for filling stations throughout the country. Structural steel shops of the district report contracts coming in steadily though not in very large tonnages. Local requirements are far from being small in themselves.

Cast Iron Pipe.—The five pressure cast iron pipe plants are melting iron steadily and lettings are again reported as improving, in tonnages as well as in numbers. Sanitary pipe making is on the increase, several shops requiring more pig iron. Organization of selling agencies has been perfected in this district, four such agencies now pushing the selling of soil pipe and fittings, in some instances these agencies actually buying shops. Anticipations for both pressure and sanitary pipe are such as to warrant belief that through the rest of the year there will be steady operation of plants. Quotations are: 6-in. and over, $47 to $48; 4-in., $51 to $52; Class A pipe, $5 per ton higher.

Coke.—The coke market is still lagging, despite the fact that machine shops and foundries and cast iron pipe making are somewhat active. The quotations for coke, both beehive and by-product, range from $4.50 to $5.50. No contracts are being reported. Most of the business is for early delivery. Production will be materially increased later on this month when Newcastle Coal Co.'s beehive ovens are taken over by the Black Creek Coal & Coke Co.

Scrap.—The better feeling in the scrap iron and steel market in the South noted during the last two weeks is still on and inquiries are somewhat more numerous though selling is no better. Quotations are unchanged for the week. Dealers have strong stocks and are prepared for any and all demands.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	11.00 to 12.00
Railroad wrought	11.00 to 12.00
Steel axles	17.00 to 18.00
Iron axles	19.00 to 19.50
Steel rails	11.00 to 12.00
No. 1 cast	15.00 to 16.00
Tram car wheels	15.00 to 16.00
Car wheels	14.00 to 15.00
Stove plate	14.00 to 15.00
Machine shop turnings	6.00 to 7.00
Cast iron borings	7.00 to 8.00
Rails for rolling	15.00 to 16.00

The Technology Book Review Index is issued quarterly by the technology department of the Carnegie Library at Pittsburgh at a subscription price of 50 cents a year. The pamphlet for the first quarter of this year contains some 130 pages. Brief extracts of published reviews of different books are given in connection with each announcement.

Boston

Gradual Tapering Off in Demands for Pig Iron—Prices Remain Unchanged

BOSTON, Aug. 5.—Demands for pig iron in New England are gradually tapering off. Most foundries have sufficient on hand or on order to carry them through the third quarter and some into the fourth period, even should the demand for castings materially improve. Furnaces, as a rule, are not soliciting fourth quarter business, although on some recent orders booked part of the iron was contracted for October shipment. The largest sale reported the past week was one of 1000 tons Buffalo No. 1X, August, September and October delivery at $19.50 furnace. The same furnace sold 500 tons No. 2X and No. 1X at $19 and $19.50, respectively. Sales otherwise were in 200-ton and smaller lots, the aggregate not being much more than 3000 tons. Buffalo No. 2X iron is still offered at less than $19 furnace, although one furnace heretofore meeting competitive bidding is holding to $19 now. It has, however, offered No. 1X at $19 furnace. Eastern Pennsylvania iron is still available at $20 furnace base, although $21.50 is the general asking price. Virginia and Alabama iron prices are still out of line with Buffalo and eastern Pennsylvania; consequently furnaces are selling only limited tonnages for mixture purposes. No foreign iron was received at this port the past week.

We quote delivered prices on the basis of the latest reported sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$23.65 to $25.15
East. Penn., sil. 2.25 to 2.75	23.65 to 25.15
Buffalo, sil. 1.75 to 2.25	23.66 to 23.91
Buffalo, sil. 2.25 to 2.75	23.66 to 24.41
Virginia, sil. 1.75 to 2.25	30.92 to 31.92
Virginia, sil. 2.25 to 2.75	31.42 to 32.42
Alabama, sil. 1.75 to 2.25	29.60 to 30.60
Alabama, sil. 2.25 to 2.75	30.10 to 31.10

Cast Iron Pipe.—R. D. Wood Co., Philadelphia, was the low bidder on 1500 lengths of 6-in. and 700 lengths of 8-in. pipe required by Providence, R. I. Medford, Mass., rejected all bids on approximately 100 tons 12-in. pipe. L. D. Donaldson Iron Co. was the low bidder on 2500 lengths of 6-in., 100 lengths of 8-in. and 1600 lengths of 12-in. to be purchased by Everett, Mass. The Warren Foundry & Pipe Co. is awarded 300 tons of small pipe by Pittsfield, Mass. Prices on large pipe continued unsettled, while those on small hold steady. Cast iron pipe is quoted: 4-in., $67.10 f.o.b. cars Boston common rate points; 6-in. to 12-in., $62.10; 16-in. and larger, $60 to $61 a ton.

Warehouse Business.—Buying of iron and steel continues in small individual lots, yet the weekly movement from warehouses is gradually expanding. Sheets are in limited demand. Plates, on the other hand, are in slightly larger request. Warehouse stocks, collectively, are somewhat larger than a month ago. Wire nails have been cut 10c. a keg. Stove bolt makers have reduced prices 5 per cent and cat and set screws 10 per cent, but distributors have not changed their lists.

Soft steel bars, $3.26½ base per 100 lb.; flats, $4.15; concrete bars, $3.51½ to $3.64; structural steel, $3.36½; tire steel, $4.50 to $4.75; open-hearth spring steel, $5 to $10; crucible spring steel, $12; steel bands, $4.01½ to $5; hoop steel, $5.50 to $6; cold rolled steel, $4.15 to $4.65; toe calk steel, $6; refined iron bars, $3.26½; best refined bars, $4.60; Wayne, $5.50; Norway, $6.60 to $7.10; plates, ¼-in. and heavier, $3.36½; No. 10 blue annealed sheets, $4.16½; galvanized sheets, $6 base; black sheets, $5 base.

Coke.—Both New England producers of by-product foundry coke have announced that the contract price for fuel for August is $11.50 a ton delivered, the same as last month. The demand for coke is a shade more active than it was a month ago, but foundries are still buying for immediate requirements only, not being disposed as yet to start stocking for the winter. Practically no interest is shown in Connellsville or New Jersey cokes by consumers in this territory.

Old Material.—Recent sales of pipe are reported at $11.10 to $11.50 on cars shipping point, an advance of 50c. a ton, and cotton ties have advanced that much to $8.50. Old material prices otherwise remain practically the same as a week ago. There is a fair demand for heavy melting steel, pipe and machine shop turnings for shipment to eastern Pennsylvania, but owners of such material are holding off for higher prices. Thus comparatively little scrap is being shipped out of New England. For Worcester, Mass., and Rhode Island consumption, $11.25 to $11.50 is being paid for heavy melting steel. New England foundries are still inquiring for machinery cast, but sellers' and buyers' ideas on prices are far apart. Owners of such material are demanding 85c. per 100 lb., which compares with 72½c. heretofore, or a delivered price of about $21.75 on an average freight rate of $2.25. Local brokers have bought machinery cast in New York for New England delivery at 71c. per 100 lb. and selected textile machinery the past week sold at $20.30 delivered, which represents a profit of less than 50c. a ton to the broker. The Boston & Albany Railroad this week will award approximately 1000 tons of miscellaneous material. The Boston Elevated has not awarded its several hundred tons of scrap, bids for which recently closed.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	$19.50 to $20.50
No. 2 machinery cast	16.50 to 17.50
Stove plates	14.50 to 15.00
Railroad malleable	16.50 to 17.00

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$11.25 to $11.75
No. 1 railroad wrought	12.50 to 13.00
No. 1 yard wrought	11.50 to 12.00
Wrought pipe (1-in. in diam., over 2 ft. long)	11.00 to 11.50
Machine shop turnings	8.00 to 8.50
Cast iron borings, chemical	9.00 to 9.50
Cast iron borings, rolling mill	8.00 to 8.50
Blast furnace borings and turnings	7.00 to 7.50
Forged scrap and bundled skeleton	8.00 to 9.00
Shafting	16.50 to 17.00
Street car axles	16.00 to 16.50
Rails for rolling	13.00 to 13.50

St. Louis

Pig Iron Shows Further Improvement—Missouri Pacific Car Order Finally Placed

ST. LOUIS, Aug. 4.—A further improvement is reported in the market for pig iron, and prices are firm with an upward tendency. Sales for the week amounted to about 8000 tons. There is a growing feeling among melters that the market has about reached bottom and they are more willing to buy on present levels, especially as they have only moderate stocks on hand and their business is showing improvement. There is a noticeable tendency on the part of smaller melters to go into the market. Northern iron is quoted at $19.50 to $20, Chicago. The Southern market is at $18 to $18.50, Birmingham, although one small lot brought $19.50. The Granite City maker is still at $21 to $22, f.o.b. there. That concern sold 4000 tons during the week, consisting of 2000 tons of basic to an East Side melter, 900 tons of basic to a St. Louis melter, 300 tons of foundry iron to an Iowa melter, 250 tons of foundry grade to a local job foundry, 120 tons of malleable to an East Side melter, 100 tons of foundry to a Kansas City engine builder and 50 tons to an Oklahoma foundry. A leading Southern interest sold 3000 tons, including 1000 tons to a local job foundry, 400 tons to a stove manufacturer and 150 tons to a Quincy (Ill.) foundry. Other scattering small sales were made.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $3.28 from Florence and Sheffield (rail and water), $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$21.16 to $21.56
Northern malleable, sil. 1.75 to 2.25	21.16 to 21.56
Basic	21.16
Southern fdy., sil. 1.75 to 2.25 (rail)	23.17 to 23.67
Southern fdy., sil. 1.75 to 2.25 (rail and water)	21.28 to 21.78
Granite City iron, sil. 1.75 to 2.25	$20.81 to 22.81

Finished Iron and Steel.—The outstanding development in finished iron and steel is the placing of the order by the Missouri Pacific Railroad for 2000 refrig-

erator cars and 1000 automobile box cars, which had been held up for some time. This will involve about 40,000 to 45,000 tons of rolled steel, in addition to the wheels and axles. The Laclede Steel Co. got the order for 225 tons of reinforcing bars for the Commodore Garage, St. Louis. The Wabash Railway is in the market for another maker for 1000 kegs of standard track spikes. Fabricators report an improvement in small orders. The demand for sheets is the smallest known for years.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, cold-rolled, one pass, 5c.; cold rolled rounds, shafting and screw stock, 4.15c.; structural rivets, 3.90c.; boiler rivets, 4.10c.; tank rivets, $\frac{7}{8}$-in. and smaller, 60 per cent off list; machine bolts, 55 and 5 per cent; carriage bolts, 40-5 per cent; lag screws, 60 and 5 per cent; hot pressed nuts, squares or hexagons, blank or tapped, $3.50 off list.

Coke.—Foundry grades are only in fair demand, although slightly improved as a result of increased operations. Domestic grades are still dull, as dealers are showing little interest in their requirements for fall.

Old Material.—The market continues to advance. Buying by consumers is still light and, as for weeks, it has been a dealers' market. Dealers continue to pay higher prices in the expectation of a heavy buying movement soon. The latter part of the week showed some interest in the market by consumers. New railroad lists include: Pennsylvania System, 40,000 tons; Missouri Pacific, 3000 tons; Cotton Belt, 1100 tons, and St. Louis & San Francisco, 500 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton

Iron rails	$12.00 to $12.50
Rails for rolling	16.75 to 17.25
Steel rails less than 3 ft.	17.50 to 18.00
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	16.00 to 16.50
Heavy melting steel	14.75 to 15.25
Heavy shoveling steel	14.50 to 15.00
Frogs, switches and guards cut apart	16.00 to 16.50
Railroad springs	19.00 to 19.50
Heavy axles and tire turnings	11.00 to 11.50
No. 1 locomotive tires	14.50 to 15.00

Per Net Ton

Steel angle bars	14.50 to 15.00
Steel car axles	18.00 to 18.50
Iron car axles	22.50 to 23.00
Wrought iron bars and transoms	16.50 to 17.00
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	13.00 to 13.50
Cast iron borings	8.00 to 8.50
No. 1 busheling	11.00 to 11.50
No. 1 railroad cast	16.00 to 16.50
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	13.00 to 13.50
Machine shop turnings	6.00 to 6.50
Champion bundled sheets	7.50 to 8.00

Philadelphia

Keen Interest in Pittsburgh Plus Agitation—One Large Structural Contract

PHILADELPHIA, Aug. 5.—The recent order of the Federal Trade Commission in regard to Pittsburgh basing has aroused the liveliest interest in buyers and sellers of this district as they consider it in connection with the comments of Chairman Gary. While it is felt that the abandoning of the Pittsburgh basing custom would not be disastrous or even have very important results, there is a belief that it would cause confusion, as buyers could not so easily figure the basis of quotations as they can at the present time. However, the habit of quoting on the Pittsburgh basis has continued for so long that it is not likely to be soon forgotten, even if formally abandoned. Most buyers are well informed as to the situation, but one wrote a letter asking whether prices on his contract would be reduced on account of the action of the commission.

The past week has been one of moderate improvement in finished lines and extreme quiet in pig iron. The scrap market is strong.

Pig Iron.—Buying has been confined to lots of from carloads to a few hundred tons and very little interest is being shown in the market except that there is more tendency to cover for fourth quarter. One or two furnaces are willing to quote for that delivery on the same basis as for third quarter, but most sellers are very conservative about the more distant delivery and still hope to get 50c. more. Several companies are quoting on the basis of $20 furnace for the base grade, 1.75 to 2.25 per cent silicon, with 50c. differentials for grades higher in silicon, but $20.50 is the usual minimum. The low phosphorous market is extremely dull; no iron of this grade is now being made in the country, as the furnaces which make it are on the idle list. Last week's imports at Philadelphia included 1548 tons of pig iron from India.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$20.76 to $22.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.26 to 22.63
East. Pa. No. 1X	21.76 to 23.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	28.17 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.67 to 29.17
Basic delivered eastern Pa.	20.00 to 21.00
Gray forge	21.00 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.00 to 25.00

Ferroalloys.—The price of ferromanganese has been reduced to $100 furnace or seaboard for British, and $19 for domestic, and this cut of $5 to $6 has not aroused any interest in the market.

Billets.—Sales have been confined to small lots, with prices continuing at $36 on rerolling billets and $43 on forging billets, Pittsburgh base, but an inquiry of some size is now pending and the situation may change within a day or two.

Plates.—Eastern plate mills are enjoying mild improvement in business and some find that July orders exceeded those of June. Prices continue at 1.80c. to 1.90c., Pittsburgh, in the ordinary run of business, but on 500 tons or more 1.75c. can still be done. At some points, especially Baltimore, very keen competition is reported.

Structural Material.—Fabricating shops whose stocks have been reduced to a very low point have been buying more freely for stock, but a conservative policy is stell marked. The largest structural contract of the week was for the new power plant of the Philadelphia Electric Co. on which Stone & Webster have the general contract and the steel will be furnished by the American Bridge Co. The newspaper report that the Penn Athletic Club, 5000 to 6000 tons, had been awarded to a general contractor is not correct, but action is expected soon. Additions to the Chalfonte Hotel and Haddon Hall, Atlantic City, involving 900 tons, were awarded to the Lehigh Structural Steel Co. Shapes are still quoted at 2c. Pittsburgh by one or two mills and 2.20c. mill by another company, and concessions below 2c. Pittsburgh are rare except on very important jobs. Last week 733 tons arrived from Belgium and 43 from France.

Bars.—On soft steel bars 2.15c. Pittsburgh is firmly adhered to, but business is in very moderate volume. There is very little demand for bar iron, but sellers manage to get 2.10c. Pittsburgh on the little tonnage sold.

Bolts, Nuts and Rivets.—Third quarter contracts written some time ago are on the basis of 60 and 20 per cent off on large machine bolts, but on current business there is considerable irregularity, although moderate improvement has taken place recently.

Sheets and Tin Plate.—More interest is being shown in contracting for tin plate. On sheets a fair amount of business has been taken at 2.75c. to 2.80c. Pittsburgh for blue annealed, while 3.50c. for black and 4.60c. for galvanized, both Pittsburgh, are the usual quotations.

Ore.—Ore importations last week included 500 tons of manganese ore and 254 tons from Germany, but the principal importation was 5400 tons of chrome ore from Portuguese Africa.

Warehouse Business.—Reductions of 13c. per 100 lb. have been made on iron and steel bars, plates, shapes, square, twisted and deformed bars and bands.

Other prices are unchanged and for local delivery are as follows:

Soft steel bars and small shapes, 3.22c.; iron bars (except bands), 3.22c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 3.32c.; tank steel plates, ⅜ in., 3.47c.; blue annealed steel sheets, No. 10 gage, 3.75c.; black sheets, No. 28 gage, 4.75c.; galvanized sheets, No. 28 gage, 5.85c.; square twisted and deformed steel bars, 3.22c.; structural shapes, 3.32c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; round cold-rolled steel, 4.15c.; squares and hexagons, cold-rolled steel, 4.65c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.10c.; narrower than 1 in., all gages, 4.60c.; steel bands, No. 12 gage to ⅛ in., inclusive, 3.97c.; rails, 3.35c.; tool steel, 8.50c.; Norway iron, 7c.

Old Material.—Buying of heavy melting steel has continued during the past few days, the tonnage probably amounting to 25,000 tons, and prices varying from $15.50 to $16.50. These transactions have added new strength to the market, which was strong the preceding week, and $16 can now be regarded as the minimum on heavy melting steel, while prices are slightly higher on several other grades.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	$16.00 to $16.50
Scrap rails	16.00 to 16.50
Steel rails for rolling	17.50 to 18.00
No. 1 low phos., heavy 0.04 and under	20.00 to 21.00
Couplers and knuckles	19.50 to 20.00
Cast-iron car wheels	17.50 to 18.00
Rolled steel wheels	19.50 to 20.00
No 1 railroad wrought	18.00 to 18.50
No. 1 yard wrought	16.50 to 17.00
No. 1 forge fire	13.75 to 14.25
Bundled sheets (for steel works)	13.00 to 13.50
Mixed borings and turnings (for blast furnace use)	11.00 to 11.50
Machine shop turnings (for steel works use)	13.50 to 14.00
Machine shop turnings (for rolling mill use)	13.50 to 14.00
Heavy axle turnings (or equivalent)	15.00 to 16.00
Cast borings (for steel works and rolling mills)	13.50 to 14.00
Cast borings (for chemical plants)	14.00 to 14.50
No. 1 cast	17.00 to 18.00
Heavy breakable cast (for steel plants)	16.50 to 17.00
Railroad grate bars	15.00 to 15.50
Stove plate (for steel plant use)	15.00 to 15.50
Wrought iron and soft steel pipes and tubes (new specifications)	16.00 to 16.50
Shafting	23.50 to 24.50
Steel axles	22.00 to 23.00

San Francisco

Buyers Are Cautious—Chief Promise Is for Structural Steel

SAN FRANCISCO, July 23.—Business is moving along in a quiet way with buyers disposed to maintain a waiting attitude presumably in the expectation that prices may drop to lower levels. It is very doubtful whether low prices would stimulate buying, for many who follow the general trade situation closely believe a further decline would simply increase the ultra-cautious buying now plainly discernible in some of the leading lines. A substantial decrease in orders from Japan was fully expected and it has materialized, and orders from other Pacific Ocean ports are not as extensive as expected; in fact, they are below normal. Meanwhile the filling of existing orders on constructive enterprises continues, and this constitutes the best feature of the business. Montgomery Ward & Co. will duplicate their present big building in Oakland, finished only a few months ago, with a new edifice on the south half of the block. This will require some 1800 tons of steel. The foundation is now being laid. In Stockton, the new Dental-Medical building of 15 stories was started last week. It will take over 2100 tons of steel. In the same city a new theater has been planned and bids are now being received. It includes the use of 1200 tons of steel. Bids were opened a few days ago in Los Angeles for the construction of the new Jonathan Club building which will cost over $2,650,000 and 3700 tons of steel will be utilized.

Pig Iron.—Importers are not complaining much about dullness, but are optimistic, while admitting a certain measure of quietness in trade channels. There is no accumulation of material and cargoes are mostly sold before arrival. Mills and foundries are purchasing in a moderate way and prices are held fairly steady. French and Belgian iron is selling at $27 to $27.50 per ton. The moderate price is attracting considerable attention to this iron and an extensive trade is being developed. It is said that another order for 8000 tons has recently been placed with the same company at Amsterdam which had the order for 10,000 early in May last for delivery at San Francisco. Two cargoes of this European pig iron now on the way are destined for Los Angeles and Portland respectively. While considerable of this iron has been delivered on the Pacific Coast during the last few months, it does not appear to have interfered with the sale of English and Scotch iron to any marked extent. The latter sells at higher figures and importers still quote from $30 to $31.50 per ton for desirable grades in round lots. While business is quiet prices are steady.

Coke.—There has been some slackening in the movement of coke, but it is deemed unimportant, considering the fact that buyers purchased freely for several weeks, some of them possibly in excess of their immediate needs. These accumulations cannot be very large, however, and an increased demand is confidently looked for by the middle of next month. Importers report a moderate tonnage on the way with a fair inquiry in progress. The quotable price is still $18 to $18.50 per ton, although some buyers claim they can purchase at 50c. less than the lower figure. Judging by the present inquiries, importers say they look for an increased demand within the next six weeks or so.

Finished Steel and Iron.—With the exception of structural materials, the volume of business is still below normal. Prices are reasonable, in fact they can be said to be low on many lines, but the buying is of small proportions. Sellers say there seems to be nothing in sight for the present, and while they are optimistic there is an undercurrent of uncertainty. There is moderate inquiry for merchant bars and sales of small lots are more numerous than two weeks ago. There has been some sharp competition in steel plates and shading of asking figures has been a feature. Sales of nails have been larger than for several weeks and prices show some steadiness. Rivets and nuts are rather quiet. All materials for structural purposes are meeting with a fair inquiry and prices remain about steady. The demand for wire and reinforcing rods continues good with prices held steady. A feature of the market has been the award of a contract for the manufacture of 1,450,000 pairs of 1925 automobile license plates to the Kittle Mfg. Co. of Los Angeles at 14.2c. per pair. Approximately 35 carloads of steel will be required to manufacture the plates. Advices from Portland, Ore., say the largest single shipment of iron water pipe ever delivered there was unloaded from the steamer Suffolk last week. It aggregated 3180 tons and the point of shipment was Galveston, Tex.

Old Material.—Little change is noted in trade conditions, the buying element still holding aloof and confining purchases to the smallest possible quantities. Heavy melting steel is held at $12, but according to buyers, the price is being shaded 50c. to $1 per ton in some instances. Stocks offering are not large, however, and the requirements of consumers will doubtless compel increased purchasing within the next few weeks. Reports from Los Angeles say business there is dull with prices weak.

An open competitive examination for a dynamometer engineer, to fill a vacancy in the Bureau of Mines in San Francisco, will be held by United States Civil Service Commission, Washington. Applications will close Sept. 2.

Cleveland

Increased Demand for Finished Material Does Not Stabilize Prices

CLEVELAND, Aug. 5.—The demand for finished steel has gained over the previous week, some of the mills reporting that orders had been more numerous and larger. However, with the increase in volume prices have continued weak and still show a downward tendency on some products. Some buyers feel that prices are at the bottom and have inquiries out covering their requirements for some time and in some cases for the remainder of the year, while others, after asking for prices, have decided to postpone buying until the market becomes more stabilized. Further weakness has developed in plates with quotations of 1.90c., although 2c. is still the more common price and mills are able to get 2.10c. for small lots. Steel bars remain firm at 2.15c. and this is still the prevailing price on structural material. Mill operations in this territory have increased, although the Bourne-Fuller Co. has shut down its Upson steel plant following the blowing out of its blast furnace. Agricultural implement manufacturers are looking for good business because of the advance in grain prices and some of these came in the market during the week for steel bars and agricultural shapes, this being the first activity from this source in months. The demand from the automotive field shows a slight gain. There has been further buying of rim sections, one order being for 1000 tons. Among new inquiries is one for 750 tons of plates for stills for the Standard Oil Co. of Indiana. Another inquiry for a Lake boat has come out, making five boats that are pending. It is reported that the Ford Motor Co. is contemplating the purchase of another boat. In the structural field new inquiries are fair. Lettings reported during the week aggregated 2000 tons and among new inquiries is one from the Louisville & Nashville Railroad for two bridges requiring 3000 tons.

Jobbers quote steel bars, 3.11c.; plates and structural shapes, 3.21c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.45c. to 3.76c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 3.86c.; narrower than 1 in. or lighter than No. 20 gage, 4.36c.; No. 9 annealed wire, $3.30 per 100 lb.; No. 9 galvanized wire, $3.75 per 100 lb.; common wire nails, $3.40 base per 100 lb.

Iron Ore.—The American Radiator Company late last week purchased 200,000 tons of iron ore for which it has had an inquiry out for some time. The business was divided, the most of it going to three producers. This company also acquired an interest in a mine in the Menominee district producing high phosphorus ore which will supply a portion of its requirements. Keen competition developed for the business which was placed on a three year contract basis. Price concessions were made, as is customary in term contracts, so that the business was not a real test of the market prices for the current season on which some shading by smaller mining companies has been reported. It is understood, however, that the buyer was able to secure ore from one smaller producer for this year's delivery at 50c. a ton under the regular schedule. The slowing down of ore shipments previously reported is shown by a total Lake movement of 7,280,014 tons during July as compared with 7,583,926 tons during June. This is a decrease of 3,131,234 tons from the corresponding month last year. Total Lake shipments until Aug. 1 were 22,107,142 tons, or a decrease of 4,489,586 tons, or 16.88 per cent as compared with the corresponding period last year. A further decrease will be shown this month. The Pittsburgh Steamship Co. has ordered the 11 barges that it has had in commission laid up as soon as they reach lower Lake ports, so that these will be out of service before the end of the week. About 90 vessels of the Lake fleet are now idle.

Pig Iron.—Sales fell off the past week although quite a little business came out in foundry and malleable iron and one producer booked 13,000 tons from several furnaces. A 2000 ton lot was sold in Buffalo and an inquiry came out from a Hamilton, Ohio, consumer for a like tonnage which probably will go to a southern Ohio furnace. The market shows a firmer tendency. While $18.50 on foundry and malleable iron has probably not entirely disappeared, Lake furnaces are holding more firmly to the $19 price and one local interest has advanced its price to $19.50, although it is still meeting conditions in certain localities with a $19 price. A 200 ton lot sale was made at the advance. The Valley market is firm at $19 and the same price prevails in the Michigan territory outside of Detroit. For Cleveland delivery the price is unchanged at $20, furnace. The demand for low phosphorus iron has improved with several sales in lots up to 300 tons. A Valley interest is holding to $27.50 for that grade, but lower prices are reported. Southern iron is firm at $18. Prices on Ohio silvery are untested, but it is believed that a round lot inquiry would bring a sharp reduction from the regular schedule. The Bourne-Fuller Co., Cleveland, blew out its Upson furnace July 30 for relining.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 rate from Birmingham:

Basic, Valley furnace	$19.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	20.50
Southern fdy., sil. 1.75 to 2.25	24.00
Malleable	20.50
Ohio silvery, 8 per cent	33.52
Stand. low phos., Valley furnace	$27.00 to 27.50

Semi-Finished Steel.—Slabs were sold in the northern Ohio territory during the week at slightly lower than $35, Youngstown. This is the first test of the market for some time and the price is a reduction of over $3 a ton from the recent nominal quotation of $38. No activity is reported in sheet bars, but specifications on contracts carried over from the second quarter and based on trade paper quotations are fairly heavy. A local mill is now operating 12 out of 14 open-hearth furnaces.

Sheets.—The demand for sheets has improved, but at further price concessions of $2 a ton on all grades. Some inquiries have come out for contracts covering extended requirements or the remainder of the year. Some mills are quoting 3.40c. for black, 2.60c. for blue annealed and 4.60c. for galvanized sheets, while others are asking $2 a ton higher. Automobile body sheets have slipped $2 a ton to 4.90c., which has become a fairly common quotation.

Strip Steel.—Further weakness has developed in cold-rolled strip steel, which is now quoted at 4c. by some mills. Hot-rolled strip steel continues irregular, with a range of from 2.15c. to lower for wide strip carrying good extras and up to 2.65c. for hoops.

Warehouse Business.—In spite of the recent price reductions, warehouse prices are being shaded $2 a ton. A $2 a ton reduction on sheets out of stock has been made by a leading local jobber.

Reinforcing Bars.—These are in good demand in lots under 100 tons. The market lacks firmness. Shading to 2.10c. on billet steel bars and to 1.80c. on rail steel bars is reported, although the usual quotation for the latter is 1.90c. to 2c. The Franklin Steel Works has taken 150 tons for a building for the White Motor Co., Cleveland.

Coke.—Some contracts for Connellsville foundry coke for the remainder of the year were closed during the week at $5.50, but some standard grades are quoted at $4.50. West Virginia by-product coke is now being offered in this market and it is quoted as $5, and Kentucky by-product coke at $6.50, Connellsville basis.

Bolts, Nuts and Rivets.—Prices on bolts and nuts are somewhat firmer. One Cleveland manufacturer Aug. 1 withdrew all quotations below the regular schedule and some other manufacturers are understood to have decided to adhere to the regular market prices, which have been quite generally shaded from 5 to 10 per cent. Some are quoting large machine bolts at 60 and 20 per cent off list and others at 65 and 10 per cent. The improvement in the demand noted last

week is holding up. Rivets also are moving somewhat better, although prices on these are still irregular.

Old Material.—Scrap offered by two Detroit automobile companies last week amounting from 6000 to 8000 tons brought higher prices than the prevailing market at Ohio consuming points. Shoveling turnings sold at $12, a Cleveland mill being the reported purchaser, machine shop turnings at $11.25, compressed sheet steel at $12.75 and $12.85 and heavy melting steel at $15.10. Considerable of this scrap was purchased by dealers. The freight rate from Detroit is $3.02 to Cleveland and $3.53 to the Valley district. The market continues dull with very little consumer buying, although a Cleveland consumer during the week purchased 4000 to 5000 tons of machine shop turnings and mixed borings and turnings at $13.75. Prices are fairly firm. Turnings and mixed borings and turnings have advanced 25c. to 50c. a ton and cast iron borings $1 a ton. Machine shop turnings sold locally to dealers at $13.50 and compressed sheet steel for Valley delivery at $16.25. Sales of heavy melting steel are reported at $17.60 to $17.75 for Canton delivery. The New York Central Railroad will receive bids Aug. 7 on 8000 tons of scrap, about one-half of which is cast iron car wheels. This railroad list covers certain grades of scrap which are not taken by the McKinney Steel Co. which, under its contract with the New York Central Railroad, which has been renewed, takes approximately 90 per cent of the New York Central scrap at prices based on IRON AGE quotations. The Pere Marquette has a scrap list out of 2200 tons.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$15.00 to $15.50
Rails for rolling	15.75 to 16.00
Rails under 3 ft	16.25 to 16.75
Low phosphorus melting	17.50 to 17.75
Cast iron borings	14.00 to 14.50
Machine shop turnings	13.25 to 13.75
Mixed borings and short turnings	13.25 to 13.75
Compressed sheet steel	13.25 to 13.50
Railroad wrought	12.75 to 13.00
Railroad malleable	17.00 to 17.50
Light bundled sheet stampings	12.00 to 12.50
Steel axle turnings	13.25 to 13.50
No. 1 cast	18.00 to 18.25
No. 1 busheling	12.75 to 13.00
Drop forge flashings	13.25 to 13.50
Railroad grate bars	13.25 to 13.50
Stove plate	13.25 to 13.50
Pipes and flues	11.00 to 11.25

High Railroad Wages

Railroad wages continue to lead those of manufacturing industries, while the average hourly earnings of all groups of wage earners in anthracite mining have reached the highest point since 1914, it is stated in a report by the National Industrial Conference Board. The report on railroad wages covers from 1914 to the end of the first quarter of this year. In the first quarter of this year the average hourly earnings of all railroad employees were 60c., which, the report stated, is 136 per cent greater than the earnings in 1914 and only a little below the peak in 1920.

The conference board found that the purchasing power of these earnings in the last quarter was 30 per cent greater than in 1914, showing a slight increase since the second half of 1923, this due to a slight increase in earnings and about the same decline in the cost of living. The wage figures are based on the average number of wage earners in those railroads whose annual revenues total $1,000,000 a year or over.

Detroit Scrap Market—Pig Iron Melt Does Not Show Increase

DETROIT, Aug. 5.—The increase in melting by foundries in this district predicted for the first of the month has not materialized and it is generally felt that August tonnage figures will not be much above those of July. The automobile industry with few exceptions has not increased its production figures and in one or two cases of large producers their August schedule has been reduced. Scrap prices are same as quoted a week ago.

Use of Metal Strapping Urged by Department of Commerce

WASHINGTON, Aug. 5.—The Department of Commerce is officially advocating the use of metal box strapping whenever possible, and hopes to extend its use by instructions which it is distributing in connection with its campaign to improve domestic shipping and reduce the present enormous cost due to poor packing. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, stated last week that the public and all factors of industry as well as transportation agencies should benefit from the investigations which are being undertaken at the request of manufacturers, shippers and carriers. The new domestic studies are a direct result of the investigations into export packing carried on by the bureau some months ago at the suggestion of the House Committee on Merchant Marine and Fisheries. According to Dr. Klein, losses to railroads alone during 1922 because of improper packing are estimated at $11,800,000. It cost carriers last year $5,000,000 for repairs to damaged containers. More than 5,000,000,000 containers, Dr. Klein said, are used in domestic shipping every year.

With the help of the Forest Products Laboratories, Madison, Wis., the Interstate Commerce Commission, the Post Office Department and such organizations as the Chamber of Commerce of the United States, the American Railway Association, the American Society for Testing Materials, the National Association of Box Manufacturers, the Associated Cooperage Industries of the United States, the Wire-Bound Box Association and the American Railway Express, the studies have been inaugurated along two basic lines: First, the need for stronger and better containers so as to reduce loss and damage in transit; and second, the need for cutting down the constantly growing costs of distribution in which packing plays an important part. Representatives of the organizations named are now assisting in drawing up plans with the Department of Commerce. John F. Keeley is the representative of the department.

The use of metal box strapping is no longer considered an additional shipping-room expense, Mr. Keeley said. Laboratory tests, he pointed out, long ago showed that its use not only enables the thickness of sides, tops and bottoms of boxes to be materially reduced, thus lowering the shipping weight, but that it adds considerably to the strength of the container and to its resistance against shipping hazards.

Scholarship at Ohio State University Under Will of Benjamin G. Lamme

Two scholarships for the two most capable students in mechanical and electrical engineering courses at the Ohio State University were established by the will of the late Benjamin G. Lamme, prominent electrical engineer and chief engineer of the Westinghouse Electric & Mfg. Co. at the time of his death recently. A fund of $15,000 has been set aside for these scholarships, which are to be awarded the winners during their senior year. Mr. Lamme was a graduate of Ohio State University, to which he bequeathed his life collection of Indian relics. The will also provides for three funds each of $6,000 for gold medal awards. From one fund a medal is to be awarded to one of the graduates of the technical departments of Ohio State University for meritorious achievements in engineering or technical arts. From a second fund a medal is to be given to a teacher for accomplishment or actual advancement in technical teaching.

Other funds set aside for the American Institute of Electrical Engineers will provide a medal for the member of that society for meritorious achievement in the development of electrical apparatus or machinery. Not more than $1,000 of these funds can be used in making suitable dies for the medals and the remainder will be deposited for interest. If the interest from the fund permits, two medals may be awarded during a period of one year.

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

Plates

Sheared, tank quality, base, per lb.....2c. to 2.10c.

Structural Materials

Beams, channels, etc., base, per lb.....2c. to 2.15c.
Sheet piling .....2.10c. to 2.25c.

Iron and Steel Bars

Soft steel bars, base, per lb.....2.15c.
Soft steel bars for cold finishing.....$3 per ton over base
Reinforcing steel bars, base.....2.15c.
Refined iron bars, base, per lb.....3c.
Double refined iron bars, base, per lb.....4.50c to 4.75c.
Stay bolt iron bars, base, per lb.....6.50c. to 7.00c.

Hot-Rolled Flats

Hoops, base, per lb.....2.60c.
Bands, base, per lb.....2.60c.
Strips, base, per lb.....2.50c. to 2.60c.

Cold-Finished Steel

Bars and shafting, drawn or rolled, base, per lb.....2.80c.
Bars and shafting, drawn or rolled, l.c.l., per lb.....3.05c.
Shafting, turned and polished, base, per lb.....2.80c.
Bars, S. A. E. Series, No. 2100.....4.50 to 4.75c.
Bars, S. A. E. Series, No. 2300.....6.00c. to 6.25c.
Bars, S. A. E. Series, No. 3100.....5.00c. to 5.25c.
Strips, base, per lb.....4.00c. to 4.50c.

Wire Products

(To jobbers in car lots)

Nails, base, per keg.....$2.85
Galvanized nails, 1 in. and over.....$2.25 over base
Galvanized nails, less than 1 in..... 2.50 over base
Bright plain wire, base, No. 9 gage, per 100 lb.....$2.60
Annealed fence wire, base, per 100 lb..... 2.75
Spring wire, base, per 100 lb..... 3.60
Galvanized wire No. 9, base, per 100 lb..... 3.20
Galvanized barbed, base, per 100 lb..... 3.55
Galvanized staples, base, per keg..... 3.55
Painted barbed wire, base, per 100 lb..... 3.30
Polished staples, base, per keg..... 3.30
Cement coated nails, base, per count keg..... 2.20 to 2.25
Woven fence (to jobbers) 726-12½-12, per 100 rods....18.70
Woven fence (to retailers) 726-12½-12, per 100 rods....20.03
Bale ties, carloads to jobbers..75, 5, 5 and 2½ per cent off list

Bolts and Nuts

Machine bolts, small rolled threads,
65, 10 and 10 per cent off list
Machine bolts, all sizes, cut threads..65 and10 per cent off list
Carriage bolts, ⅝ x 6 in.:
Smaller and shorter, rolled threads.65 and 10 per cent off list
Carriage bolts, cut threads, all sizes.....65 per cent off list
Eagle carriage bolts.....65, 10 and 10 off list
Lag bolts .....70 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads....50 and 10 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts, ¾ x 4 in..
50, 10 and 10 per cent off list
Larger and longer sizes.....50, 10 and 10 per cent off list
Hot pressed nuts, blank or tapped, square..4.80c. to 5c. off list
Hot pressed nuts, blank or tapped, hexagons.5c. to 5.30c. off list
C.p.c. and t. square or hex nuts, blank or tapped
4.50c. to 4.85c. off list
Semi-finished hex nuts:
⅞ in. and smaller, U. S. S.....80, 10 and 5 per cent off list
⅝ in. and larger, U. S. S.....75, 10 and 5 per cent off list
Small sizes, S. A. E.....80, 10, 10 and 5 per cent off list
S. A. E., ⅝ in. and larger.....75, 10 and 5 per cent off list
Stove bolts in packages.....80, 10 and 5 per cent off list
Stove bolts in bulk.....80, 10, 5 and 2½ per cent off list
Tire bolts .....60 and 10 per cent off list
Bolt ends with hot pressed nuts.....60 and 5 per cent off list
Bolt ends with cold pressed nuts.....50 and 5 per cent off list
Turnbuckles, with ends, ½ in. and smaller,
55 and 5 per cent off list
Turnbuckles, without ends, ½ in. and smaller,
70 and 10 per cent off list
Washers .....5.75c. to 6.00c.
Lock washers .....80 per cent off list

Semi-Finished Castellated and Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh.)

	Per 1000 S. A. E.	Per 1000 U. S. S.		Per 1000 S. A. E.	Per 1000 U. S. S.
¼-in.	$4.25	$4.25	⅞-in.	$13.25	$13.50
5/16-in.	4.90	4.90	15/16-in.	16.25	16.50
⅜-in.	5.90	6.25	1-in.	22.50	23.00
7/16-in.	7.50	8.50	1⅛-in.	34.00	34.00
½-in.	9.75	10.00	1-in.	53.00	55.00

Larger sizes—Prices on application.

Cap and Set Screws

Milled hex. head cap screws.....75, 10 and 5 per cent off list
Milled standard set screws, case hardened,
75, 10 and 5 per cent off list
Milled headless set screws, cut thread,
75, 10 and 5 per cent off list
Upset hex. head cap screws, U. S. S. thread,
80, 10 and 10 per cent off list
Upset hex. head cap screws, S. A. E. thread,
80, 10 and 10 per cent off list
Milled studs .....65 and 10 per cent off list

Rivets

Large structural and ship rivets, base, per 100lb.,
$2.50 to $2.60
Small rivets .....70, 10 and 5 per cent off list

Track Equipment

Spikes, ⅝ in. and larger, base, per 100 lb..... $2.80
Spikes, ½ in. and smaller, base, per 100 lb..... 3.25
Spikes, boat and barge, base, per 100 lb..... 3.25
Track bolts, all sizes, base, per 100 lb..... 3.75
Track bolts, heat-treated, base, per 100 lb..... 4.25
Tie plates, per 100 lb..... 2.50 to 2.55
Angle bars, base, per 100 lb..... 2.75

Welded Pipe

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3	61	50½
¼ to ⅜	47	30½	¼ to ⅜	+19	+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½	60	49½	1 to 1½	30	14

Lap Weld, extra strong, plain ends

2	53	42	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1½ points, with a supplementary discount of 5 per cent on galvanized.

Boiler Tubes

Lap Welded Steel		*Charcoal Iron*	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	55	3 and 3¼ in.	36
1¼ and 1½ in.	47	3½ and 3¾ in.	37
1¾ in.	31	4 in.	41
2 and 2¼ in.	22	4½ in. and 5 in.	33
2½ and 2¾ in.	32		

Hot Rolled

3 and 3¼ in.	38	4 in.	43
3½ in. and 3¾ in.	39		

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base.....87 per cent off list
Carbon 0.30 to 0.40, base.....85 per cent off list
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

	Cents per Ft.		Cents per Ft.
2-in. O.D. 12 gage	15	2¼-in. O.D. 10 gage	20
2-in. O.D. 11 gage	16	3-in. O.D. 7 gage	35
2-in. O.D. 10 gage	17	1¼-in. O.D. 9 gage	15
2¼-in. O.D. 12 gage	17	5⅜-in. O.D. 9 gage	55
2¼-in. O.D. 11 gage	18	5½-in. O.D. 9 gage	57

Tin Plate

Standard cokes, per base box.....$5.50

Terne Plate

(Per Package, 20 x 28 in.)

8-lb coating, 100 lb. base	$11.00	20-lb. coating I. C.	$14.90
8-lb. coating I. C.	11.30	25-lb. coating I. C.	16.20
12-lb. coating I. C.	12.70	30-lb coating I. C.	17.35
15-lb. coating I. C.	13.95	35-lb. coating I. C.	18.35
		40-lb. coating I. C.	19.35

Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb.....2.60c. to 2.70c.

Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb.....3.40c. to 3.50c.

Automobile Sheets

Regular auto body sheets, base (22 gage), per lb. 4.75c. to 5.00c.

Galvanized

No. 28 (base), per lb.....4.50c.to 4.60c.

Long Ternes

No. 28 gage (base), 8-lb. coating, per lb.....5.30c.

Tin-Mill Black Plate

No. 28 (base), per lb.....3.50c.

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron	$5.65
Old range non-Bessemer, 51½ per cent iron	4.90
Mesabi Bessemer, 55 per cent iron	5.40
Mesabi non-Bessemer, 51½ per cent iron	4.75

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.00c. to 9.50c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal	45c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus	42c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, per unit, in 60 per cent concentrates	$8.75 to $10.00
Chrome ore, basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f. Atlantic seaboard	19.00 to 22.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	75c. to 85c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$99.00
Ferromanganese, British, 80 per cent f.o.b. Atlantic port, duty paid	100.00
Ferrosilicon, 50 per cent,. delivered	$69.00 to 75.00
Ferrosilicon, 75 per cent	140.00
Ferrotungsten, per lb. contained metal	90c. to 93c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered	10.75c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.	10.50c.
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....$33.00 to $35.00
Spiegeleisen, domestic, 16 to 19 per cent..... 32.00 to 34.00
Ferrosilicon, Bessemer, 10 per cent, $39.50; 11 per cent, $42; 12 per cent, $44.50; 14 to 16 per cent (electric furnace), $40.00.
Silvery iron, 5 per cent, $27.00; 6 per cent, $28.00; 7 per cent, $29.00; 8 per cent, $30.50; 9 per cent, $32.50; 10 per cent, $34.50; 11 per cent, $37.00; 12 per cent, $39.50.

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	$18.00 to $19.00	
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	19.00 to 20.00	
Per 1000 f.o.b. works:		
Fire Clay:	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$36.00 to $40.00
Maryland	45.00 to 47.00	40.00 to 42.00
Ohio	40.00 to 43.00	37.00 to 39.00
Kentucky	42.00 to 43.00	37.00 to 39.00
Illinois	——	37.00 to 42.00
Missouri	42.00 to 45.00	35.00 to 40.00
Ground fire clay, per net ton		6.00 to 7.00
Silica Brick:		
Pennsylvania		35.00 to 38.00
Chicago		47.00
Birmingham		50.00
Ground silica clay, per net ton		7.50 to 8.00
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)		65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)		40.00
Chrome Brick:		
Standard size, per net ton		45.00

Semi-Finished Steel, F.O.B. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over	$38.00
Rolling billets, 2-in. and under	38.00
Forging billets, ordinary carbons	43.00
Sheet bars, Bessemer	$38.00 to 40.00
Sheet bars, open-hearth	38.00 to 40.00
Slabs	38.00
Wire rods, common soft, base, No. 5 to ⅜-in.	48.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon, 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb.	2c. to 2.15c.
Skelp, sheared, per lb.	2c. to 2.15c.
Skelp, universal, per lb.	2c. to 2.15c.

Finished Iron and Steel, F.O.B. Mill

Rails, heavy, per gross ton	$43.00
Rails, light, new steel, base, lb.	1.85c. to 1.90c.
Rails, light, rail steel, base, per lb.	1.65c. to 1.75c.
Bars, common iron, base, per lb., Chicago mill	2.20c.
Bars, common iron, Pittsburgh mill	2.40c.
Bars, rail steel reinforcing, base, per lb.	2.10c. to 2.15c.
Rail steel bars, base, per lb., Chicago mill	2.10c.
Cold-finished steel bars, base, Chicago, per lb	2.80c.
Ground shafting, base, per lb.	3.20c.
Cut nails, base, per keg	$2.90

Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100*(1¼% Nickel, 10 to 20 per cent Carbon)	$3.25 to $3.50
2300 (3½% Nickel)	4.75
2500 (5% Nickel)	6.00 to 6.50
3100 (Nickel Chromium)	3.75
3200 (Nickel Chromium)	5.50 to 5.75
3300 (Nickel Chromium)	8.00
3400 (Nickel Chromium)	6.50 to 7.00
5100 (Chromium Steel)	3.35 to 3.75
5200*(Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.50
6100 (Chromium Vanadium spring steel)	4.25 to 4.50
9250 (Silicon Manganese spring steel)	3.50 to 3.75
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.25 to 4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.35 to 4.50
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.85 to 4.25
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb., f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are $10 per gross ton less than net ton prices for bars of same analysis. On smaller than 4 x 4-in. billets the net ton bar price applies.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, carload lots, 36,000 lb. minimum carload, per 100 lb:

Philadelphia, domestic	$0.32	Buffalo	$0.265	St. Louis	$0.43	*Pacific Coast	$1.15
Philadelphia, export	0.235	**Cleveland	0.215	Kansas City	0.735	*Pac. Coast, ship plates	1.20
Baltimore, domestic	0.31	**Cleveland, Youngstown Comb.	0.19	Kansas City (pipe)	0.705	Birmingham	0.58
Baltimore, export	0.225	Detroit	0.29	St. Paul	0.60	Memphis	0.56
New York, domestic	0.34	Cincinnati	0.29	Omaha	0.735	Jacksonville, all rail	0.70
New York, export	0.255	Indianapolis	0.31	Omaha	0.705	Jacksonville, rail and water	0.415
Boston, domestic	0.365	Chicago	0.34	*Denver	1.15	New Orleans	0.67
Boston, export	0.255			†Denver (pipe)	1.17		

*Applies minimum carload 80,000 lb. **There will be no official change until Sept. 20, but, as for some time, the 19c. rate prevails. †Minimum loading 46,000 lb.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 35c.; ship plates, 40c.; ingots and muck bars, structural steel, common wire products, including cut or wire nails, spikes, and wire hoops, 40c.; sheets and tin plates, 40c.; sheets, No. 12 gage and lighter, 50c.; rods, 40c.; wire rope cables and strands, 45c.; wire fencing, netting and stretcher, 40c.; pipes not over 12 in. in diameter, 55c.; over 12 in. in diameter, 2½c. per in. or fraction thereof additional. All rates per 100 lb. in carload lots, minimum 36,000 lb.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
July	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
30.....	13.25	13.00	49.25	7.65	7.35	6.35	6.00
31.....	13.25	13.00	49.50	7.65	7.35	6.35	6.00
Aug.							
1.....	13.25	12.75	49.62½	7.65	7.35	6.30	5.95
2.....	13.25	12.87½	....	7.65	7.35	6.35	6.00
4.....	13.25	12.87½	50.25	7.65	7.35	6.37½	6.02½
5.....	13.25	13.12½	51.75	7.65	7.37½	6.52½	6.17½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Aug. 5.

There has been a slackening in most of the markets during the past week. After a slight reaction, copper has again advanced and is strong. The tin market is quiet but higher. Demand for lead has receded but prices are firm. The zinc market has suddenly grown strong after a moderate reaction.

Copper.—After the pronounced advance of a week ago the reaction, which was expected, developed but did not last long. Electrolytic copper, after selling as low as 13c. delivered on Aug. 1, developed strength early this week and the minimum today is generally regarded as 13.37½c., delivered. There are substantial inquiries before the market and fairly good sales have been made, although sellers are somewhat reluctant. Both domestic and foreign demand has characterized the market. The advance in sterling exchange as well as higher prices today in London have also been factors. The probable adoption of the Dawes plan in Europe is having a strong sentimental effect. Lake copper is quoted at 13.25c. to 13.37½c., delivered.

Copper Averages.—The average price of Lake copper for the month of July, based on daily prices in THE IRON AGE, was 12.80½c., delivered. The average price of electrolytic copper was 12.39½c., refinery, or 12.64½c., delivered.

Tin.—Prices for Straits tin have advanced sharply, due more to the better economic outlook for Europe and to the result of the conferences in London than to increased buying. The constant appreciation in the value of the pound sterling has also been a factor in the higher prices. Total sales for the week have not exceeded 500 tons. The largest business was done on July 30 and 31, but dealers were the chief buyers. On Aug. 1 some business was done at 49.50c. to 49.62½c. The total, however, was small. Because of the holiday in London yesterday there was practically no business here, but the quotation advanced to 50.25c., caused by the increase in sterling exchange. Spot Straits tin today was quoted at 51.75c., New York, in an exceedingly quiet market. Quotations in London today were about £14 to £16 per ton higher than a week ago, with spot standard quoted at £256 15s., future standard at £256 15s., and spot Straits at £258 5s., with the Singapore quotation yesterday at £250 10s. Arrivals thus far this month have been 875 tons, with 3184 tons reported afloat. Deliveries of tin into consumption for July are reported as 3930 tons, with 5059 tons in stock and landing on July 31. Imports in July were 4922 tons, bringing the total to Aug. 1 to 42,777 tons.

Lead.—The panicky desire of buyers has receded and the market is quieter. There is also more desire on the part of sellers to do business and to meet the ideas of consumers. A fairly good business has been done in the past week, but by no means as heavy as in the two previous weeks. The leading interest still maintains its contract price at 7.50c., New York. In the outside market, metal for prompt and August delivery is quoted at 7.65c. to 7.75c., New York, and 7.35c. to 7.40c., St. Louis.

Zinc.—A moderate reaction during the week caused quotations to recede to as low as 5.95c., St. Louis. Since then, particularly today, due partly to conditions in London and to bidding by operators, prime Western zinc for early delivery is quoted at 6.17½c. to 6.20c., St. Louis, or 6.52½c. to 6.55c., New York. Aside from bidding by dealers, demand for export continues the prominent factor and there has also been better buying for domestic consumption.

Nickel.—Quotations for shot and ingot nickel are unchanged at 27c. to 32c. per lb., with electrolytic nickel held at 32c. by the leading producers.

Antimony.—Chinese metal in wholesale lots for prompt and August delivery is quoted at 9c. per lb., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted by importers at 26.50c. to 27c. per lb., duty paid, delivered.

Old Metals.—The market continues firm and active. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible	12.75
Copper, heavy and wire	11.75
Copper, light and bottoms	10.75
Heavy machine composition	10.50
Brass, heavy	8.25
Brass, light	6.75
No. 1 red brass or composition turnings	9.00
No. 1 yellow rod brass turnings	7.75
Lead, heavy	6.70
Lead, tea	5.50
Zinc	4.25
Cast aluminum	16.50
Sheet aluminum	16.50

Chicago

AUG 5.—Prospective settlement of the reparations problem has given further improvement to the metal market. Greater activity and strength prevails in the market for tin and there is considerable buying of copper, but these transactions largely are among traders. Consumers have not as yet shown sufficient interest to come actively into the market for good sized lots of metals, but are expected to in the near future. The market for old metals is quiet, but the outlook for improvement is said to be good. We quote in carload lots: Lake copper, 13.75c.; tin, 51.50c.; lead, 7.37½c.; spelter, 6.10c.; antimony, 10.50c., in less than carload lots. On old metals were quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 8.75c.; red brass, 8c.; yellow brass, 7c.. lead pipe, 6c.; zinc, 4c.; pewter, No. 1, 25c.; tin foil, 29c.; block tin, 35c.; all buying prices for less than carload lots.

Prices Not Firm at Youngstown

YOUNGSTOWN, Aug. 5.—Mahoning Valley independent steel makers continue optimistic with respect to the business outlook for the immediate future. With some district independents, tonnage is beginning to accumulate and consumers are showing a livelier interest in the market than heretofore. Likewise, gains in orders the past month are being held.

Some consumers, for instance, are showing concern over their fall requirements and their specifications cover more than their immediate needs.

The volume of new business coming to the mills is substantially better than it was a month ago.

Prices, however, are not holding, and producers have shown a dispostion, in finished steel lines, to yield in the matter of price if such action served as a stimulant to business. While black sheets have been quoted down to 3.40c. in the district, and the smaller interests are undoubtedly taking business at this figure, the market average is nearer 3.50c. This latter figure is down $2 to $3 per ton from the price average in May and June.

Wire products are also lower than in March, the recessions ranging from $1 to $3 per ton. Steel plates have declined to 2c. per lb., from 2.15c.

On the other hand, enlarged operations are reducing production costs per ton of output, thus enabling the mills to offer prices more in line with consumers' ideas of the market.

The McClintic-Marshall Co., Pittsburgh, started work this week on erection of structural steel required for the Belmont Avenue viaduct in Youngstown.

PERSONAL

Henry M. Cunnington, formerly trade and markets editor of *Electrical World*, has been appointed to take charge of advertising and sales promotion publications issued by the Robert Bosch Magneto Co., manufacturer of Bosch magnetos and associated products.

L. H. Beyer, director of purchases for the American Radiator Co., Buffalo, has been appointed secretary of the manufacturing department, effective August 1. His headquarters will be in Buffalo.

Joseph D. Rogers, general sales manager of the Art Metal Construction Co., Jamestown, N. Y., sailed from New York on July 31 for Europe in connection with business of the company. He will be gone six weeks.

Dexter A. Tutein, resident manager in Philadelphia for E. Arthur Tutein, Inc., pig iron and coke dealer, has sailed on a business trip to Europe. He will visit blast furnaces and steel plants in most of the European countries.

Robert W. A. Brewer has associated himself with the Engineers Development Co., 508 Atlantic Building, Philadelphia, of which he is president and consulting engineer. Besides handling the interests of Michell Bearings, Ltd., London, England, the company will undertake all kinds of engineering development work.

F. G. Prest, director of purchases for the Northern Pacific Railway Co., has been retired under the pension rules, after 44 years of continuous service with the company. R. J. Elliott, purchasing agent, will be in charge of the purchasing and stores departments. Leonard Crassweller has been appointed assistant purchasing agent, with headquarters at St. Paul, Minn., and Paul McKay becomes assistant purchasing agent, with headquarters at Seattle, Wash., vice Mr. Crassweller.

Ross Watson, formerly district manager of the Cleveland branch for the Chicago Pneumatic Tool Co., has been transferred to the Minneapolis branch as district manager, succeeding D. M. Wesbrook, now general manager of the Canadian Pneumatic Tool Co. L. J. Westenhaver has been transferred from the Pittsburgh office to Cleveland as district manager and E. C. Stroup, compressor engineer in the Boston territory, has been moved to the Pittsburgh district.

H. L. Woolfenden, for several years a consulting engineer in Detroit, has joined the Scott Valve Mfg. Co. of that city and will have charge of sales promotion. He is a graduate mechanical and electrical engineer, having received both degrees from the University of Michigan. He was associated for several years with the Allis-Chalmers Mfg. Co. and while district manager at Denver, had charge of all sales and engineering work in the Rocky Mountain district.

G. A. White has been appointed assistant to the president of the Otis Steel Co., Cleveland. He was for several years general manager of the Trumbull Steel Co., Warren, Ohio, resigning that position July 1.

O. P. Blake is district sales manager of the branch office opened in the Bank of Commerce Building, Kansas City, Mo., last Monday by the Inland Steel Co., Chicago.

R. E. MacDonald, sales manager of the Salvage Mountain Fire Brick Co., Frostburg, Md., with offices in the Federal Reserve Building, Pittsburgh, has been elected a member of the directorate.

OBITUARY

JACOB H. MOHR, superintendent of Carrie Furnaces of the Carnegie Steel Co., Rankin, Pa., was killed in an automobile accident at the plant, Aug. 4. In company with M. J. Ryan, Mr. Mohr was leaving the plant in an automobile driven by Mr. Ryan. It is said that misunderstanding the signal of the watchman, Mr. Ryan drove across the railroad track on which a plant switching engine was backing. In attempting to leave the car, Mr. Mohr was pinched between the railroad car and the automobile, receiving internal injuries from which he died on the way to the hospital. Except for a period of about a year and one-half with the Oliver Iron & Steel Co., Mr. Mohr had been with the Carnegie Steel Co. continuously for 41 years. His first connection was at the Edgar Thomson Works as a messenger boy. Returning to the Carnegie company in 1893 from the Oliver Iron & Steel Co., he was in the open-hearth department at Homestead for two years and then for five years was assistant chief chemist and later chief chemist at the Duquesne Works. He was chief chemist at Carrie Furnaces from 1900 to 1902 and assistant superintendent from 1902 to 1905, when he was made superintendent. He was born in Germany 53 years ago, but came to this country with his parents when a boy. His widow, one son and four daughters survive him.

CHARLES F. MACGILL, long identified with engineering activities, died on July 27 in Boston. He was born at Keeseville, N. Y., in 1858. His engineering training was obtained in railroad shops and copper mines. He first engaged in the manufacture of horseshoe nails by machinery and for several years thereafter was associated with the Westinghouse Agricultural Works, Schenectady, N. Y. Subsequently Mr. MacGill was associated with the General Electric Co. Schenectady, Pittsfield, Mass., and in Canada. Then he engaged in the building of marine engines and boats at Quebec, and for a time was with the Diesel Engine Co. During the war he was with the Remington Arms Co., at the Bridgeport, Conn. plant in charge of the bayonet department.

JOHN H. DUNLAP, secretary of the American Society of Civil Engineers, died in Chicago on July 29, from injuries received June 30 in the wreck on the Chicago, Burlington & Quincy Railroad at Buda, Ill. Mr. Dunlap was a graduate of Dartmouth College and was in his forty-first year.

BENJAMIN E. WATSON, secretary-treasurer, Scranton Stove Works, Inc., Scranton, Pa., died at his home in that city on July 28 following a nervous collapse. He was 56 years of age.

HOWARD D. WILLIAMS, for the past five years Detroit sales manger of the Ferry Cap & Set Screw Co., Cleveland, died on July 30 from an attack of influenza and pneumonia. He was 36 years of age.

GEORGE C. BARDONS, member of the firm of Bardons & Oliver, Cleveland, manufacturers of turret lathes, died on July 29 of pneumonia after a short illness, aged 63 years. He was born in New York and located in Cleveland 39 years ago when he became connected with the engineering department of the Warner & Swasey Co. About 20 years ago he and John G. Oliver formed the firm of Bardons & Oliver.

CHARLES D. ROWE, sole member of the firm of Rowe Brothers, 766 Atlantic Avenue, Brooklyn, dealers in iron and steel supplies, died on July 4, aged 61 years.

THOMAS B. NUTTALL, who was superintendent of the Pennsylvania Tube Works, Pittsburgh, before its absorption by the National Tube Co., died recently in Miami, Fla.

The American Association of Oil Burner Manufacturers has decided to hold its next meeting in Chicago in the first week of April, 1925. Plans are now under consideration looking to a revision of the constitution to provide for a dealer division and in that event the association may take on a new name, such as the American Oil Burner Association. Cooperative educational advertising to offset adverse propaganda is included among the association plans.

FABRICATED STEEL BUSINESS

Bookings of Nearly 37,000 Tons and Sustained Volume of New Inquiry

Including some 8000 tons of structural steel for the Philadelphia Electric Co.'s power house, bookings of the past week in fabricated steel amounted to 36,900 tons in sizeable jobs, making the average of the past four weeks 35,000 tons. A great deal of work is now in the hands of structural engineering concerns and architects, much of it likely to be active during the next few months, and the week's addition to the list of projects under negotiation was 16,350 tons. The leading items are as follows:

Philadelphia Electric Co., power house, 8300 tons silicon structural steel, to American Bridge Co.

Great Northern Railway Co., bridge steel, 2400 tons, to American Bridge Co.

Girls' Catholic High School, New York, 1300 tons, to Hedden Iron Construction Co.

Riveted pipe, Hope, R. I., 1400 tons, to the Walsh Holyoke Steam Boiler Works.

Federal American National Bank, Washington, 500 tons, to Barber & Ross, Washington.

Asbury Park, N. J., high school, 500 tons, to Kellogg Structural Steel Co., Buffalo.

Public Service Electric Corporation, substation, Newark, N. J., 400 tons, to Shoemaker Bridge Co.

New Jersey Zinc Co., at Palmerton, Pa., 400 tons, probably to Jones & Laughlin Steel Corporation.

New York Telephone Co., Rutherford, N. J., 350 tons, to Hedden Iron Construction Co.

Apartment for the Bricker Construction Co., Park Avenue and Ninetieth Street, New York, 1700 tons, to A. E. Norton, Inc.

John Wanamaker, New York, filling in rotunda or inside court for sixteen stories, 1000 tons, to Taylor-Fichter Steel Construction Co.

Apartment house, Fort Washington Avenue, 164th to 165th Streets, New York, 1300 tons, to A. E. Norton, Inc.

Goercke department store, Jersey City, 600 tons, to Oltmer Iron Works.

Ed. and Al. Friedman Realty Co., apartment house, 25 West Eighty-sixth Street, New York, 600 tons, to the Lehigh Structural Steel Co.

Apartment house for George A. Fuller Co., 151 East Seventy-ninth Street, New York, 600 tons, to the Lehigh Structural Steel Co.

Chalfonte Hotel and Haddon Hall, Atlantic City, N. J., two additions, about 900 tons, to the Lehigh Structural Steel Co.

Bing & Bing, New York, apartment house, 145 East Fifty-fourth Street, New York, 514 tons, to the Taylor-Fichter Steel Construction Co.

Bing & Bing, New York, apartment house, West End Avenue and Seventy-fifth Street, New York, 570 tons, to the Taylor-Fichter Steel Construction Co.

Telephone Exchange building, San Francisco, 572 tons, to Ralston Iron Works.

Swift & Co., St. Paul addition, 118 tons, to St. Paul Foundry.

Metro Theatre, Chicago, 163 tons, to Duffin Iron Works.

U. L. Clark Mfg. Co., Rockford, Ill., addition to plant, 131 tons, to unnamed fabricator.

Oklahoma City, bridge, 1100 tons, to Kansas City Structural Steel Co.

Jefferson County, Mo., bridge, 300 tons, to Kansas City Structural Steel Co.

Ocean Park County, Cal., theater, 250 tons, to Minneapolis Steel & Machinery Co.

State of Nebraska, highway bridge, 400 tons, to Omaha Bridge Co.

Kansas City Refrigerator Co., tank works, 850 tons, to Kall Boiler Co.

Oklahoma City, Walker Avenue Viaduct, 900 tons, to McClintic-Marshall Co.

Roosevelt Hotel, New Orleans, 1600 tons, reported awarded to Nashville Bridge Co.

Union Indemnity Building, New Orleans, 1500 tons, Nashville Bridge Co., low bidder on steel erection.

Pritchard Hotel, Huntington, W. Va., 300 tons, to Hancock Construction Co.

Cincinnati, Lebanon & Northern Railroad, warehouse at Cincinnati, 250 tons, general contract to M. R. Hanke, Cincinnati, steel not purchased.

Kenosha, Wis., high school, 400 tons, to Worden-Allen Co.

Shawtown Bridge, Eau Claire, Wis., 350 tons, to Worden-Allen Co.

Knights of Columbus Club House, Green Bay, Wis., 325 tons, to Milwaukee Structural Steel Co.

Burnham-Stoepel Co., Detroit, warehouse, 2000 tons, to McClintic-Marshall Co.

M. A. Hanna Co., trestle and ore bins at Cherry Valley furnace, Leetonia, Ohio, 500 tons, to Jones & Laughlin Steel Corporation.

Detroit Free Press building, Detroit, 1200 tons, to McClintic-Marshall Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

New York Central Railroad, bridge repairs in Indiana, 400 tons.

Western Electric Co., Washington and Bethune Streets, New York, addition, 1500 tons.

Liberty Title Building, Broad and Arch Streets, Philadelphia, 1500 tons.

Power house, Luzerne County, Pa., 1600 tons.

Central Railroad of New Jersey, highway bridge, 250 tons.

Apartment, 1030 Fifth Avenue, New York, 700 tons.

Pennsylvania Railroad, Lemoyne, Pa., bridge work, 300 tons.

Hospital, Binghamton, N. Y., 500 tons.

Loft building, Madison Avenue and Thirty-fourth Street, New York, 3000 tons.

Whitecord apartment house, 159 East Forty-ninth Street, New York, 500 tons.

New York Telephone Co., Hanover Exchange, New York, 300 tons.

Apartment for Mathews Construction Co., Seventy-second Street, New York, 300 tons.

Apartment for Omaha Construction Co., Eighty-sixth Street and West End Avenue, New York, 500 tons.

Louisville & Nashville Railroad, two bridges, one across Cumberland River, 700 tons, one near New Orleans, 1600 tons, bids being taken.

French Lick, Ind., hotel addition, 800 tons, bids close Aug. 7.

U. S. Engineers' Office, Louisville, sheet piling for Dam No. 52, 1200 tons, bids open Aug. 11.

U. S. Engineers' Office, Cincinnati, 3 water tanks, 100 tons, bids opened Aug. 18.

First National Bank building, Huntington, W. Va., 600 tons, bids being taken.

Nickel Plate Railroad, bridge near Lorain, Ohio, 100 tons.

Liberty Title & Trust Co. building, Broad and Arch Streets, Philadelphia, 2000 tons.

F. W. Woolworth Co., store, Cleveland, 800 tons, previously reported as 250 tons.

City Savings & Trust Co., Alliance, Ohio, bank building, 200 tons, new bids taken.

Eagles Home, Buffalo, N. Y., 300 tons.

Central Union Trust Co., Wheeling, W. Va., bank building, tonnage unstated.

RAILROAD EQUIPMENT BUYING

Missouri Pacific and Other Car Orders Total 3160 —New Offerings Few

Orders for 3160 freight cars, including 2950 for the Missouri Pacific, were placed in the week but no locomotive business came to light and fresh car inquiries were limited to 50. The chief items are listed below.

The records of the locomotive builders show shipments of 140 new locomotives in July against 145 in June and unfilled orders for 483 on Aug. 1 against 531 on July 1.

The Soo Line has awarded 200 flat cars, 4 coaches and 2 baggage and mail cars to the Pullman Co.

The American Refrigerator & Transit Co. is inquiring for 50 express refrigerator cars.

The Missouri Pacific has ordered 1000 automobile cars for its own road and 1950 refrigerator cars for its subsidiary, the American Refrigerator Transit Co. The automobile cars were distributed among the General American Tank Car Co., the Standard Tank Car Co. and the American Car & Foundry Co. The refrigerator cars were awarded as follows: 725 to the American Car & Foundry Co., 725 to the Mount Vernon Car & Mfg. Co. and 500 to the General American Tank Car Co.

The Seaboard Air Line has ordered 6 express cars, 6 passenger and baggage, 6 baggage and mail and 10 caboose cars from the American Car & Foundry Co.

Machinery Markets and News of the Works

SENTIMENT SLIGHTLY STRONGER

Inquiries and Orders Continue to Be Largely for Single Machines

Pennsylvania Railroad Issues Small List—Lists of Other Railroads Looked For

Orders and inquiries continue to be of small volume and to be confined for the most part to single machines from scattered sources. However, an improvement in sentiment may be said to be reflected from the reports of practically all districts.

Action is looked for shortly on a number of outstanding lists, which, in addition to that of the Chicago Board of Education and the Santa Fe Railroad, include the lists of the A. O. Smith Corporation, Milwaukee, and the Owens Bottle Co., Toledo. The latter company, which has been purchasing steadily for some time, is expected to buy several more tools.

An unnamed company in the Chicago district has entered the market for 14 machines. The Chicago Board of Education was to have closed bids on Aug. 5 for 19 machines for shipment to four junior high schools.

The Pennsylvania Railroad has issued a small list for various shops.

The Southern Railway is expected to make inquiry soon on a fairly extensive list for its new shops at Knoxville, Tenn., and Spartanburg, S. C. A list of equipment for the Corbin, Ky., shops of the Louisville & Nashville Railroad is also looked for.

A maker of special machinery at Covington, Ky., is inquiring for three engine lathes and it is expected that more equipment will be asked for when plans are completed for an addition to that company's plant.

Buying of tools on the list of the Japanese General Electric Co. (Shibaura Engineering Co., Tokio, Japan) has not commenced, although it has been reported that certain orders have been tentatively placed. The number of items in the original list has been reduced and some used tools from the plants of the General Electric Co. may be bought. It is stated that the total purchase of equipment will be in the neighborhood of $1,000,000.

Activity has been noted in used machine tools, particularly in Chicago and Cleveland. In the latter district about 200 machines at the plant of the L. M. Ax'e Co., Cleveland, were offered for sale at public auction during the past week.

New York

NEW YORK, Aug. 5.

BUYING of tools on the million dollar list of the Shibaura Engineering Co., Tokio, Japan (sometimes referred to as the Japanese General Electric Co.), has not actually begun, although it has been reported in the trade that certain orders have been tentatively placed. Mitsui & Co., New York, inform THE IRON AGE that all of the bids have not been examined and it may be some weeks before decisions are made. The list, as originally planned, has been cut down somewhat, and some used tools from the plants of the General Electric Co. may be purchased, but the statement of Mitsui & Co. is that the total purchases will be $1,000,000 or close to that figure.

General business has been extremely quiet the past week. A number of machine tool representatives have made trips within the past week or two sizing up industrial conditions in New York territory, and their reports are not optimistic, although there has been a slight change for the better and improved sentiment in such manufacturing centers as Buffalo, Rochester and Syracuse. Many plants, however, are working with small forces of men. One large Eastern automobile factory is working only three days a week with a greatly reduced force, but is shipping as many automobiles from stock as at this time last year.

The Norfolk & Western Railroad has ordered three axle lathes and the Atchison, Topeka & Sante Fe has bought a combination journal turning and axle lathe.

The Borden Co., 350 Madison Avenue, New York, and Kansas Avenue, Modesto, Cal., has engaged the Davis-Heller-Pearce Co., Delta Building, Stockton, Cal., architect, to prepare plans for a one-story can-manufacturing plant at Modesto, 50 x 180 ft., to cost approximately $85,000 with machinery. Bids will be asked on general contract during August.

John E. Strasse, 949 Broadway, New York, architect, has plans for a two-story automobile service, repair and garage building, 100 x 225 ft., at 509-25 West Thirty-fourth Street, for a company now being organized, estimated to cost $100,000 with equipment. Bids will be asked on general contract early in August.

Fire, July 26, destroyed a portion of the plant of the Duffney Brick Co., Mechanicville, N. Y., with loss estimated at $100,000, including equipment. It is planned to rebuild.

The Tokaido Railway, Tokio, Japan, is completing plans for the electrification of its line from Tokio to Akashi, about 300 miles. The project will cost close to $10,700,000, including locomotives, power plants, automatic power substations, etc. Tentative plans are also under advisement for the electrification of the lines in the Central and Northern districts.

The General Electric Co., Schenectady, N. Y., is concluding negotiations for the purchase of the Hurley Machine Co., Chicago, manufacturer of washing machines, vacuum cleaners, etc., and will continue operations as a new unit. The acquisition will include the Hurley plant, located on a 10-acre plot, near the Chicago city limits, approximating 205,400 sq. ft. of floor space.

The Calcutta Electric Supply Co., Calcutta, India, has preliminary plans for enlargements in its electric generating plant, to include the installation of additional machinery to increase the capacity about 20 per cent. It is said that considerable American equipment will be used.

The Burtiss Motor Sales Co., 136 Barrett Street, Schenectady, N. Y., has awarded a general contract to John McDermott, 101 Wendell Avenue, for a two-story service, repair and garage building, 45 x 60 ft.

Manual training equipment will be installed in the three-story junior high school to be erected at Croton-on-Hudson, N. Y., estimated to cost $300,000, for which bids are being received on a general contract until Aug. 15. Harvey Stevenson, 101 Park Avenue, New York, is architect.

Following recent financing, the Pierce Petroleum Corporation, 111 Broadway, New York, formerly known as the Pierce Oil Corporation, has arranged a fund of $3,325,000, of which a considerable portion will be used for an improvement and expansion program, including the remodeling of the refining plant in the Mid-Continent field and the installation of additional machinery. William H. Coverdale is chairman of the board.

The Industrial Plants Corporation, 25 Church Street, New York, is inquiring for an alligator shear of 2-in.

capacity; No. 2A Warner & Swasey lathe; 24-in. Gould & Eberhardt shaper; 24-in. x 24-in. x 10-ft. Ingersoll slab miller; 2 vertical heads; No. 7 upright Farrel pillar press; 4-spindle, 20-in. geared drill press; automatic gear hobber; 9- or 10-ft. brake; 42- to 60-in. squaring shear; No. 78½ Bliss power press; 40-ft. steel stack, 12 in. in diameter, No. 12 gage or heavier; 36-in. motor-driven American or Lodge & Shipley lathe.

C. B. Comstock, 110 West Fortieth Street, New York, architect, has plans for extensions and improvements in the five-story automobile service, repair and garage building at 163-69 East 127th Street, estimated to cost $150,000 with equipment.

The Councils of the boroughs of Bergenfield and Dumont, N. J., will take bids until Sept. 4 for the construction of a joint sewage treatment works, including pumping equipment, reduction machinery, etc. Thomas F. Bowe, 110 William Street, New York, is consulting engineer.

The Matthews Co., 101 Arlington Street, Newark, manufacturer of silver and plated ware, has plans for a new one and two-story factory at Irvington, 46 x 75 ft. and 25 x 40 ft., estimated to cost $32,000 with machinery. Allen & Bartlett, 1091 Sanford Avenue, Irvington, are architects.

The Erie Railroad Co., Jersey City, N. J., will soon lay foundations for a new power house at its local shops to cost $75,000 with equipment. A general contract for the structure has been awarded to the Bates & Rogers Construction Co., 37 West Van Buren Street, Chicago.

Samuel A. Hertz, 15 West Thirty-eighth Street, New York, architect, is completing plans for the erection of a three-story automobile service, repair and garage building, 100 x 100 ft., at 403-11 East Sixty-fifth Street, estimated to cost $125,000 with equipment.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Aug. 12 for 440 boiler stay tubes for the Brooklyn Navy Yard, schedule 2501; also 200 storage battery thermometers and a quantity of mechanical thermometers, schedule 2512.

Philadelphia

PHILADELPHIA, Aug. 4.

WORK will begin on a new coal breaker at Lansford, Pa., for the Lehigh Coal & Navigation Co., 437 Chestnut Street, Philadelphia, estimated to cost $1,000,000 with machinery.

The Leeds & Northrup Co., 4901 Stenton Avenue, Philadelphia, manufacturer of electrical measuring instruments, is taking bids for a one-story addition, for which plans have been prepared by Morris & Erskine, 1716 Cherry Street, architects.

Herman L. Winterer, 943 North Front Street, Philadelphia, machinery dealers, has inquiries out for an 8-ft. plate-bending roll, drop end housing, for handling ½-in. material.

The Philadelphia & Reading Railway Co., Philadelphia, has awarded a general contract to the Curtis-Grindred Co., Philadelphia, for its locomotive coaling station at Birdsboro, Pa., with installation to include loading and unloading equipment, weighing machinery, etc. The company is completing plans for the early erection of its new grain elevator at Port Richmond, with capacity of 3,500,000 bu. Hoisting, conveying and other machinery will be installed. It will cost in excess of $1,000,000.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received an inquiry (42513) from Gaudier & Loreda, San Juan, Porto Rico, who are desirous of making a connection with a foundry in the United States specializing in the manufacture of soil pipe, in position to furnish material for export; also, a company manufacturing galvanized steel sheets for roofing, all lengths, plain or corrugated; an inquiry (42517) from Eugene Nowland & Co., 34 Rue Godot de Mauroy, Paris IX, France, desiring to get in touch with American manufacturers of railroad and tramway supplies, and pressed steel pulleys, as well as automotive equipment and automobile accessories; an inquiry (42510) from Jean Z. Vachlas & Compagnie, Rue Romvis 18, Athens, Greece, desiring to get in touch with American manufacturers of tools, hardware, saws, locks, gas meters and kindred products, and an inquiry (42519) from the Towa Trading Co., 316 Gotenyama Shinagawa, Tokyo, Japan, desiring to get in contact with American manufacturers or exporters of lenses for automobile headlights.

The Atlantic City Electric Co., Atlantic City, N. J., is disposing of a bond issue of $2,750,000, a portion of the proceeds to be used for extensions and improvements in power plant and system.

The Penn Seaboard Steel Corporation, Franklin Bank Building, Philadelphia, is said to have plans under advisement for extensions in its plant at Newcastle, Del., with installation of additional equipment to cost more than $500,000.

The Hale Fire Pump Co., Conshohocken, Pa., manufacturer of pumps, fire engine equipment, etc., has started the erection of a one-story foundry for the manufacture of castings. Several months ago the company acquired the foundry of the Scotia Brass Co., and is now operating at this plant.

The Chester County Light & Power Co., Chester, Pa., is disposing of a bond issue of $200,000, a portion of the proceeds to be used for extensions and improvements.

The Township Board of Education, Hanover, Pa., is planning for the installation of manual training equipment in the school to be erected at Breadlaw estimated to cost $300,000, for which foundations will be laid at once.

The Royal Auto Top & Paint Shop, Forster Street, Harrisburg, Pa., will operate a sheet-metal working department in connection with extensions in its business, specializing in the production of car parts, repairs of automobile radiators, etc. Edward Jerore will be in charge.

The Shamokin Coal Co., Shamokin, Pa., recently organized, has acquired 190 acres of anthracite coal properties in this section, and plans extensive operations. The work will include the construction of an electrically-operated breaker; one-story machine shop and the installation of mining machinery, cars and locomotives. To carry out the immediate work, the company is disposing of a bond issue of $1,250,000, the entire proceeds to be used for such purpose. E. H. Boles is president.

Fire, July 26, destroyed a portion of the plant of the Reading Foundry & Supply Co., Reading, Pa., with loss estimated at $30,000 including equipment. It is planned to rebuild.

The Eddystone Steel Co., Crum Lynne, Pa., is in the market for a 500- to 750-kw., three-phase, 60-cycle, 440- or 2300-volt heavy duty, mill-type motor.

The Neudeck Machine Tool Co., Fifteenth and Mt. Vernon Streets, Philadelphia, has been organized to manufacture Neudeck internal keyway milling machines and automatic drill chucks, which are being made in Germany. The company is ready to negotiate with manufacturers equipped to do this kind of work. E. Faber is one of the heads.

The first auction sale of the newly organized Philadelphia Machinery Auction Co. will take place at the plant of the Ace Motor Corporation, Erie Avenue and Sepviva Street, Philadelphia. It is the intention to hold similar sales on the first Thursday of every month. The management states that several carloads of new and used machinery have been assembled for the sale, each of six States having supplied its quota. The equipment to be sold includes machine tools, boiler shop and forge equipment, hydraulic machinery, power house equipment, foundry equipment and woodworking machinery. The executive offices of the new enterprise, which is headed by J. H. Wood of the Eastern Machinery & Equipment Co., is at 830 Commercial Trust Building, Philadelphia.

Detroit

DETROIT, Aug. 4.

THE Kendell Co. of America, Inc., Detroit, recently organized, has acquired the Motor Products Co., Fort Wayne, Ind., and will remove the machinery and business to a building at Detroit. Additional equipment will also be installed. The new company will specialize in the manufacture of piston rings, following along the lines of the acquired company.

The Board of Education, Redford Union High School District, Redford, Mich., plans the installation of manual training equipment in the proposed two-story addition to the high school, estimated to cost $100,000, for which it is expected to ask bids at an early date. Verner, Wilhelm & Molby, Book Building, Detroit, are architects.

H. H. Pellow, Spring Street, Marquette, Mich., is considering the purchase of sheet metal-working equipment for installation in a local plant.

The DeCroupet Iron Works, Detroit, will erect an addition, 80 x 120 ft., on Greeley Street, estimated to cost $35,000.

The Hupp Motor Car Corporation, Mount Elliott and Milwaukee Avenues, Detroit, will use the former local plant of the Detroit Electric Co., manufacturer of electric-operated automobiles, for the production of a new eight-cylinder car, and remodel the works for this purpose. The present plant will be continued as heretofore for four-cylinder car production.

The Crane Market

FEW new inquiries are reported for either electric overhead or locomotive cranes. A number of orders are still pending, which will probably be placed in the next few weeks. The Long Island Railroad, Jamaica, L. I., is reported about to close on the four 20-ton electric traveling cranes asked for several weeks ago. There is some export inquiry for both locomotive cranes and hand power equipment. Japanese export houses are receiving bids on a locomotive crane for the Imperial Government Railways. The Phoenix Utility Co., 61 Broadway, New York, is understood to have closed on a 50-ton stationary, hand power hoist.

In the Pittsburgh district demand for cranes is light and no important sales are reported. The Bethlehem Steel Corporation inquiry for Johnstown, Pa., and Buffalo, is regarded as the most active bit of pending business, but it is considered possible that the company may build instead of buy the 17 cranes for the Johnstown plant. The Jones & Laughlin Steel Corporation has extensive plans for its Pittsburgh works and prices for estimating purposes have been asked on a number of cranes.

The crane market continues dull in the Cleveland territory. It is not expected that July sales of locomotive cranes when tabulated will equal those in June when orders received by members of the Locomotive Crane Manufacturers Association aggregated only 35 per cent of capacity.

Among recent purchases are:

American Gas & Electric Co., 30 Church Street, New York, a 35-ton, 38-ft. span, power house crane for South Bend, Ind., from the Whiting Corporation.

Long Island Lighting Co., Northport, L. I., a 35-ton, 48-ft. span, power house crane, from the Whiting Corporation.

Stone & Webster, Boston, Mass., a 15-ton electric crane for Manchester, N. H., reported to have been purchased from the Northern Engineering Works.

Signal Mountain-Portland Cement Co., Chattanooga, Tenn., a 6½-ton, 80-ft. span bucket crane to handle 2½-cu. yd. bucket, from the Shepard Electric Crane & Hoist Co.

Southern Railway, Washington, a 15-ton electric traveling crane, reported to have been purchased from the Pawling & Harnischfeger Co.

Pullman Co., Richmond, Cal., a 10-ton trolley, from the Shepard Electric Crane & Hoist Co.

Compagnie Duboleo, San Francisco, a monorail hoist and rail, for disposal system in a mine, from the Shepard Electric Crane & Hoist Co.

Lehigh-Wilkes-Barre Coal Co., Ashley, Pa., a 3-ton, 25-ft. 11-in. span, cage-control transfer crane, from the Shepard Electric Crane & Hoist Co.

Wycoff Drawn Steel Co., Economy, Pa., a 3-ton monorail hoist, from the Shepard Electric Crane & Hoist Co.

Titchener Iron Works, Binghamton, N. Y., a 2-ton, 32-ft. 6-in. span, 1-motor, single I-beam crane, from the Shepard Electric Crane & Hoist Co.

Carnegie Steel Co., Pittsburgh, a 10-ton, single I-beam hoist, from the Shepard Electric Crane & Hoist Co.

Nugent Steel Casting Co., Chicago, a 1-ton, 18-ft. 9-in. span, single I-beam hand power crane from the Chisholm-Moore Mfg. Co.

Collingwood Brick & Clay Co., Toledo, Ohio, a 2-ton, 34-ft. span, single I-beam hand power crane, from the Chisholm-Moore Mfg. Co.

Youngstown Sheet & Tube Co., Youngstown, a 5-ton hand power crane for the Brier Hill sheet mills, from the Whiting Corporation.

Work is in progress on a new one-story plant, 85 x 420 ft., for the Michigan Copper & Brass Co., 5851 Jefferson Avenue, Detroit, estimated to cost $100,000.

The Opalume Sign Co., Battle Creek, Mich., is reported to have tentative plans under advisement for enlargements. The company specializes in the manufacture of electric-operated signs.

The Barnes Wire Fence Co., Detroit, will proceed with the erection of a one- and two-story plant, 100 x 180 ft., on Northlawn Street, to cost approximately $50,000.

The Board of Education, Iron Mountain, Mich., contemplates the installation of manual training equipment at proposed new local schools, for which bonds for $250,000 have been voted.

The Kirchen Co., 113 South Larch Street, Lansing, Mich., is considering plans for a two story building addition, 50 x 125 ft., of brick and cement. The company manufactures tools, luggage carriers and paper cutters.

Cleveland

CLEVELAND, Aug. 4.

THE machinery market has shown a little more life the past week. The improvement is resulting from some demand which has come from jobbing machine shops taking on die and other work, mostly in the automobile field, and the demand is largely for used tools. No new inquiries of any size have come out. The New York Central Railroad has placed a 5-ft. radial drill and an 18-in. turret lathe for its Gibson, Ind., shops. A local manufacturer has quoted on two turret lathes on the revised list from the Santa Fe Railroad. The Detroit market continues very dull.

The equipment at the plant of the L. M. Axle C., Cleveland, including about 200 machines, was offered for sale at public auction the past week. A large share of the machines were bid in by local machinery houses at low prices subject to approval of the court. However, a separate bid of $100,000 for the machinery and other assets was submitted by George B. Durell, president and treasurer of the company. The matter will be taken up by the referee in bankruptcy at a hearing Aug. 11, when it is expected that a decision will be handed down as to whether the machinery will be awarded to the separate bidders or whether the lump sum bid of Mr. Durell will be accepted.

Pickands, Mather & Co., Cleveland, have decided to go ahead with the building of a new power plant in connection with the blast furnaces of the Toledo Furnace Co. at Toledo and it is expected that a contract for the major equipment will be placed this month. This will include a 10,000 kw. turbine and two 1500 kw. motor generator sets. Surplus power will be sold to the Toledo-Edison Co. and a high tension substation will be erected for stepping the current up from 6600 to 69,000 volts at which it will be delivered to the Toledo-Edison Co. A new boiler plant will not be built at present. The engineering work is in charge of Julian Kennedy, Pittsburgh, and Froelich & Emery, Toledo.

A. J. Orkin, proprietor of the sheet metal shop at 3623 Central Avenue, Cleveland, will erect a two-story extension, 35 x 72 ft.

The Ideal Laundry Co., 1936 Canton Avenue, Toledo, Ohio, has taken bids for a $50,000 power house.

A manual training department will be provided in a high school to be erected in Warren, Ohio. A. B. Clark is president of the Board of Education.

The Bishop Products Co., 7512 Carnegie Avenue, Cleveland, has awarded contract to the George A. Rutherford Co. for a two-story factory, 58 x 100 ft.

Buffalo

BUFFALO, Aug. 5.

THE Elmira Water, Light & Railroad Co., Elmira, N. Y., has plans for the construction of a new power house at First Street and Railroad Avenue, estimated to cost $50,000 with equipment.

The Trico Products Co., 624-26 Ellicott Street, Buffalo, manufacturer of metal products, has taken out a building permit for a one-story addition, 40 x 105 ft., to be equipped as a heat-treatment works.

The Kenwood Electric Light Co., Sherrill, N. Y., has plans under consideration for the erection of a new steam-operated electric power house, estimated to cost $40,000. It is also purposed to construct a similar station in the vicinity of Vernon, N. Y.

The Julian Petroleum Corporation, 505 Ziegler Building, Buffalo, and 512 Fifth Avenue, New York, operating oil properties in the vicinity of Los Angeles, is disposing of preferred stock issue of $5,000,000, a portion of the proceeds to be used for the erection of a new oil refinery, storage and distributing plants.

Negotiations for the purchase of the Binghamton Light, Heat & Power Co., Binghamton, N. Y., by the American Gas

& Electric Co., New York, have been terminated and the property will be retained by W. S. Barstow & Co., 50 Pine Street, New York, owners for a number of years. Expansion is being considered, to include the construction of another addition to the main generating plant at Johnson City, to provide at least 10,000 kw. greater capacity. The Barstow company has acquired the plant and property of the Susquehanna County Light & Power Co., Susquehanna, Pa., and will make extensions in this district, including physical connection with the transmission system of the Binghamton company.

The American Radiator Co., Elmwood Avenue, Buffalo, will begin the erection of a two-story and part basement foundry addition to its branch plant at Litchfield, Ill., 25 x 150 ft., estimated to cost $37,000. Thomas Potts is local superintendent.

The Central Garage Co., Gouverneur, N. Y., has plans for rebuilding its garage, repair shop and service station destroyed by fire a few weeks ago with loss of $50,000. New equipment will be required.

Contract has been awarded to the H. K. Ferguson Co., Cleveland, for a new boiler house and factory for the A. Y. Bennett Mfg. Co., Alden, N. Y., to replace a structure destroyed by fire July 9 with loss of $100,000. The company manufactures steel cabinets and equipment.

The Ideal Garage Co., Olean, N. Y., is in the market for a lathe, drill press, reboring machine and other equipment, in connection with a new service station under construction.

Reports, apparently with some degree of substantiality, are to the effect that the Standard Oil Co. of New York is about to build a bridge connecting Grand Island with the mainland, just north of Buffalo. The Standard Oil bridge will span the Niagara River just north of the new contemplated New York Central bridge. The Standard Oil Co., according to present reports, will erect a refinery on the island whose storage capacity will be more than 5,000,000 gal. of gasoline. The company owns approximately 300 acres of land on the east side of Grand Island. The river will be deepened, it is said, to permit Standard Oil boats to dock.

New England

BOSTON, Aug. 4.

THE purchase of two axle lathes, two car wheel boring machines and a wheel press by the Boston & Maine Railroad and a 30-ton crane by Stone & Webster, Inc., Boston, for the Manchester Traction, Light & Power Co. relieved the monotony of an otherwise dull machine-tool market the past week. The sale of two used 24-in. planing machines to a Seattle shop was the outstanding sale in the used equipment market. A verbal order for another crane has been given, but until a signed order is received details are withheld. Although purchases continue limited, machine tool dealers are more optimistic than they have been in several weeks, due to the revival of a number of old inquiries. The consensus of opinion is that a noticeable improvement in bookings will develop earlier than many in the trade anticipated.

The small tool business is spotty. Some firms last month did not do more than 20 per cent of their quota, while others booked slightly more business than in June. Prices on new tools are steady and unchanged. Quotations on used equipment display greater stability, and because of the small supply of desirable tools, will probably stiffen with any real improvement in business.

Foundations are in for a one-story and basement junior high school to contain a manual training department for Falmouth, Mass. J. Robertson Ward, 9 Cornhill, is the architect. James Nocil is chairman of the schoolhouse committee.

Bids are being taken for a three-story school on Charles Street, Dorchester, Boston, with manual training and machine shop departments, to be erected by Boston. The cost, exclusive of equipment, is estimated at $436,000. O'Connell & Shaw, 134 Newbury Street, Boston, is the architect. Thomas P. Glynn is chairman of the school commission.

Plans are being revised for a plant on North Beacon Street, Boston, for the Wood Hydraulic Hoist & Body Co., 3371 Washington Street, Jamaica Plain, Boston. The Warren Engineering Co., Terminal Wharf, Charlestown, Boston, is in charge. Bids will be asked in the near future.

Plans have been completed for a $1,500,000 high school, three stories on White Street, East Boston, to contain wood-working and machine shops. John M. Gray, 175 High Street, Boston, is the architect.

The G. & O. Mfg. Co., New Haven, Conn., automobile radiators, has acquired under lease a plant on Winchester Avenue, which is being equipped with machinery. The company will employ approximately 200. It was recently practically burned out.

Louis and Harry Shatkin, 114 Westminster Street, Providence, R. I., have construction in progress on a four-story automobile service, repair and garage building, 85 x 136 ft., at Snow and Chapel Streets, estimated to cost $100,000, with equipment.

The Joseph Poliak Tool & Stamping Co., 81 Freeport Street, Dorchester, Boston, is taking bids for a three-story addition, 30 x 32 ft., to cost about $25,000. The Maurice H. Maney Co., 46 Cornhill Street, Boston, is architect.

Bird & Son, Inc., East Walpole, Mass., manufacturer of roofing products, has plans for a one and two-story addition, 65 x 450 ft., to cost $180,000 with equipment. Monks & Johnson, 99 Chauncey Street, Boston, are architects and engineers.

Platt Brothers & Co., Waterbury, Conn., manufacturer of metal eyelets and similar specialties, has plans for a two-story addition, 120 x 125 ft., for which bids will soon be asked on a general contract. Fred Webster, 51 West Main Street, is architect.

The Wright & Ziegler Co., 12 Market Street, Boston, manufacturer of dairy equipment and appliances, has plans for an addition on Spice Street, Charlestown, Mass., to cost approximately $40,000. Monks & Johnson, 99 Chauncey Street, Boston, are architects and engineers.

Cincinnati

CINCINNATI, Aug. 4.

THE machinery market continues dull, only scattering orders for single machines being reported. Action is expected shortly, however, on a number of outstanding lists, including the Chicago Board of Education, on which new bids will be taken Aug. 12; the Sante Fe, on which revised estimates have been asked, and the A. O. Smith Corporation, Milwaukee, now several months old. The Owens Bottle Co. is also expected to buy a number of tools. It has been purchasing steadily recently, placing a few orders at a time. A local manufacturer of radial drills reports an order for three machines from a Pittsburgh district pump manufacturer. Curtailment of production is the general rule, the average operation for machine-tool manufacturers in this district being 35 hr. a week.

The Pennsylvania Railroad is inquiring for tools for various shops. The Southern Railway is expected shortly to issue a fairly extensive list for shops at Knoxville, Tenn., and Spartanburg, S. C., contracts for which were let recently. A list for the Louisville & Nashville shops at Corbin, Ky., is also looked for. A Covington, Ky., manufacturer of special machinery is inquiring for three engine lathes and will probably need other equipment for a contemplated addition.

W. F. Robertson, president of the W. F. Robertson Steel & Iron Co., Cincinnati, has purchased the equipment, machinery and raw materials of the sign and metal can department of the Elwood Myers Co., Springfield, Ohio, now in receivers' hands. Mr. Robertson recently purchased the plant of the Hudson Sheet & Tin Plate Co., Marietta, Ohio, and the purchase of the Myers plant is understood to have been made to give an outlet for at least part of the products of the mill. The plant of the Elwood Myers Co. resumed operations in several departments Aug. 1 and will continue indefinitely.

The Louisville Industrial Foundation, Louisville, reports that the Hoffman Heater Co., now located at Lorain, Ohio, will shortly remove to Louisville, and will occupy a plant to be erected by the Industrial Foundation. Seventy-five skilled workers will be employed. A. H. Babcock is president of the Hoffman company, which manufactures automatic water heaters.

The plant of the Standard Slag Co., Jackson, Ohio, destroyed by fire July 21 with a loss of $150,000 will probably be rebuilt.

The Dayton Malleable Iron Co., Dayton, Ohio, will erect a powdered coal plant to cost $40,000. It will also shortly commence the erection of similar plants at Ironton, Ohio, and Buffalo. Schenck & Williams, Dayton, are architects.

The Ohio University, Athens, Ohio, E. B. Bryan, president, is taking bids on a general contract until Aug. 11 for a three-story and basement engineering and manual training school, 110 x 115 ft., estimated to cost $200,000. Herbert Briggs, Hartman Hotel Building, Columbus, Ohio, is architect.

The United States Engineers' Office, Louisville, plans the purchase of a 15-kw. engine-generator set, steam driven, to be installed at Dam 50, Ohio River. Also two motors, switchboard and accessory equipment, for Dam 49, Ohio River.

J. M. Perkins, Frankfort, Ky., has plans under way for a two-story automobile service, repair and garage building, 80 x 90 ft., and will require equipment.

The Pease Co., 43-47 John Street, Cincinnati, manufacturer of general millwork, has purchased the former plant of the Louis Lipp Co., Winton Place, with floor area of 75,000 sq. ft., and will establish a new plant to be operated in conjunction with the present works. It is expected to secure possession early in December.

The Columbia Iron Works, 2127-29 Reading Road, Cincinnati, has filed plans for a one-story addition to cost $17,500.

Pittsburgh

PITTSBURGH, Aug. 4.

MACHINE tool business does not improve materially in this district and is particularly slack in the so-called standard tools. Most of the orders call for tools adapted to the work to be performed and it is no longer good practice for manufacturers to make up tools in advance of specifications. The McClintic-Marshall Co., Pittsburgh, is reported to have placed four gantry radial drills for its Pottstown, Pa., plant and the National Tube Co. a short time ago bought the wood-working machinery for the pattern shop of its Gary plant, while a small list of tools for the National Plate Glass Co., Blairsville, Pa., subsidiary of the General Motors Corporation, recently was closed in Detroit. Action on the several other lists which have been up for some time still is awaited.

The Bradford Supply Co. manufacturer and distributor of oil well supplies, Bradford, Pa., has acquired the plant and equipment of the Locke Machine Works, Bradford, for general machine and repair shop work.

Plans are being prepared by Oliver R. Johnson, architect, Jamestown, N. Y., for additions to the plant of the Corry-Jamestown Mfg. Co., Corry, Pa., manufacturer of metal furniture, to double the present capacity. The company is headed by David A. Hillstrom.

The Tir-Put Auto Specialties, Inc., 7300 Race Street, Pittsburgh, incorporated with $25,000, soon to be increased to $125,000, plans to build a factory to manufacture detachable tire and cross chains. It is interested in hearing from makers of chain machines which will take the wire from the coil, form, weld electrically, twist and make to length the cross pieces for tire chains. Equipment for the finishing department also is needed. A. A. Tirrill is president.

Appropriations have been made by the Board of Directors of the Westinghouse Air Brake Co., Wilmerding, Pa., for extensions in a number of subsidiary plants. Work is in progress on an addition to the local plant, totaling about 215,000 sq. ft., estimated to cost $1,200,000 with equipment.

The Board of Education, Avalon, Pa., plans the installation of manual training equipment in its proposed two-story high school, estimated to cost $185,000, for which plans are being drawn by John H. Phillips, P. O. Box 977, Pittsburgh, architect.

The Pittsburgh Sheet Glass Co., Washington, Pa., is reported to be planning the erection of an addition to its local plant to cost more than $500,000 with machinery. Walter A. Jones is president, and J. L. Keener, secretary and treasurer.

The Duquesne Light Co., 435 Sixth Street, Pittsburgh, has awarded a general contract to Dwight P. Robinson & Co., Inc., 125 East Forty-sixth Street, New York, for a two-story automatic power substation to cost $150,000 with equipment.

Fire, July 28, destroyed a portion of the plant of the Quertinmont Glass Co., Point Marion, Pa., with loss estimated at $100,000 including equipment. It is planned to rebuild.

The Guyan Machine Shops, Logan, W. Va., has inquiries out for 2 to 5-hp. motors, 220 volts, three-phase, 60-cycle, variable speed.

The Virginian Power Co., Charleston, W. Va., is disposing of a new preferred stock issue of $3,022,500, a portion of the proceeds to be used for extensions and improvements, including the construction of a proposed hydro-electric generating plant in the vicinity of Hinton, W. Va.

The Crystal Coal & Coke Co., Bramwell, W. Va., has tentative plans under way for a new plant at Stirrat, Logan County, to cost in excess of $500,000 including electric power and mining machinery, cars, etc.

Manual training equipment will be installed in the high school to be erected at Ellwood City, Pa., estimated to cost $300,000, for which it is expected to soon ask bids on a general contract. The W. G. Eckles Co., Lawrence Savings & Trust Building, New Castle, Pa., is architect.

The Hookless Fastener Co., Meadville, Pa., is said to be arranging a list of machine tools and other equipment for installation at its plant. An annealing furnace will be installed.

Esker Waugh, 926 Eleventh Avenue, Huntington, W. Va., has plans under way for a two-story automobile service, repair and garage building, estimated to cost $80,000 with equipment.

South Atlantic States

BALTIMORE, Aug. 4.

R. H. HITCHENS, MacFarland Building, Cumberland, Md., architect, has plans for a two-story automobile service, repair and garage building, 67 x 192 ft., estimated to cost $60,000 with equipment.

J. E. R. Gentry, Greensboro, N. C., has inquiries out for cold storage plant equipment, for installation in a proposed local building.

The Superintendent of State, War and Navy Department, Room 1036, Navy Building, Washington, will take bids until Aug. 12 for fuel oil-burning equipment in Building No. 6, Nineteenth Street and Virginia Avenue.

The Star Motor Car Co., 816 East Fayette Street, Baltimore, is having plans drawn for a two-story service, repair and garage building, 30 x 155 ft., to cost about $55,000. S. Russell, 11 East Lexington Street, is architect.

The General Gas & Electric Co., 50 Pine Street, New York, operated by W. S. Barstow & Co., same address, has concluded negotiations for the purchase of the Columbia Railway, Gas & Electric Co., Columbia, S. C., and subsidiary interests. The purchasing company will operate the properties in conjunction with those of the South Carolina Gas & Electric Co., Spartanburg, S. C., recently acquired, and plans the early construction of a new steam-operated electric generating station, about 20,000 hp. capacity, for auxiliary service.

The Kyle Brothers Automobile Co., Columbus, Ga., has arranged for the construction of a two-story service, repair and garage building, 60 x 140 ft., for which plans have been drawn by T. W. and E. O. Smith, Georgia Home Building, architects.

In connection with a new building program involving an expenditure of $16,350,000, the Board of Trustees of the Johns Hopkins University and Johns Hopkins Hospital, Baltimore, has authorized plans for the construction of a central power plant.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until Aug. 19 for the following equipment: Two planers and shapers and two sets of spare parts; four power saws and four sets carbon brushes; four arbor presses; two pipe-cutting and threading machines, and two sets of spare parts; and two arbor presses, schedule 2478; two radial drills and two sets of spare parts; eight sensitive drills and four sets carbon brushes; four milling machines and two sets of spare parts; and two boring machines, schedule 2481, all for the vessels Lexington and Saratoga.

The Board of Trustees, Eastern Carolina Industrial Training School for Boys, Rocky Mount, N. C., has authorized plans for the construction of a series of new industrial school buildings with power house, estimated to cost $750,000. Wilson, Berryman & Kennedy, Columbia, S. C., are architects.

The Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore, will issue bonds for $260,000, a portion of the fund to be used for extensions. Contract has been let to the Belmont Iron Works, Philadelphia, for steel frame superstructure for power station extensions.

The general purchasing officer, Panama Canal, Washington, will take bids until Aug. 18 for a metal cutting machine, cable, wire, pipe fittings, valves, conduit, and kindred products, Panama circular 1623.

The Mill & Machine Supply Co., 327 West Jackson Street, Thomasville, Ga., is planning to purchase machinery for the manufacture of corrugated paper boxes and containers.

The Southern Wheel Co., 611 Olive Street, St. Louis, manufacturer of railroad car wheels, etc., has plans under way for extensions in its branch plant at Savannah, Ga., including an addition to the foundry. A new core room and cupola will be built.

The Planters' Packing Corporation, Atlanta, Ga., is contemplating the construction of a new cold storage plant to cost approximately $100,000 including equipment.

The Common Council, Faison, N. C., contemplates the installation of electric-operated pumping equipment in connection with proposed extensions and improvements in the municipal waterworks and sewerage system, for which bonds for $83,000 will be arranged.

Chicago

CHICAGO, Aug. 4.

IMPROVEMENT has developed in the machine tool market. Inquiries have shown a particularly perceptible increase and while orders have not been numerous they have been of moderate proportions, and include a number of used machines. Improvement in the agricultural situation has also stimulated hope of better buying among railroads and implement makers. Makers of punch and shearing machines report a number of inquiries for this class of equipment.

The Santa Fe has canceled part of its extensive list, including some smaller machines, such as turret lathes and shapers and also a few of the larger machines, including wheel lathes. It is understood that the railroad will close on part of the revised list in the near future. The Burlington closed bids Aug. 2 on one 24-in. sliding head drill, motor driven.

A local company is in the market for the following equipment: One 600 or 800-lb. steam hammer; one Atlas No. 3 Arbor press; one Atlas No. 24 Arbor press; one 2-in. single-head bolt cutter, motor-driven; one 24-in. heavy duty shaper, motor-driven; one 16-in. heavy duty shaper, motor-driven; one 4-ft. plain radial drill, motor-driven; one 36-in. x 36-in. x 10-ft. planer, motor-driven; one heavy vertical drilling and tapping machine, motor-driven; one Lenox throatless shear, motor-driven; one 24-in. x 10-ft. heavy duty engine lathe, motor-driven; two 13-in. x 6-ft. heavy-duty engine lathes, motor-driven; one 24-in. vertical surface grinder, motor-driven, with magnetic chuck.

The Chicago Board of Education will close bids Aug. 5 on the following equipment for Harper, Herzl, Parker and Sabin junior high schools: Four 18-in. portable band saws, motor-driven; four 6-in. hand planers, motor-driven; four 12-in. x 26-in. center speed lathes, motor-driven; one wet grinding machine, motor-driven; six electric glue pots.

The Agate Foundries, Inc., Chicago, recently incorporated, will manufacture brass, aluminum, bronze and copper castings, and will purchase five metal-working machines for its new plant. Officers are J. T. Brownlee, president; Paul Wachtel, vice-president and treasurer; and E. H. Brownlee, secretary.

Reuter & Barboro, Chicago, manufacturers of ornamental and architectural bronze and bank supplies, are building a new plant at Sixty-third and Ada Streets, and will be in the market for machinery, but are unable at the present time to say just what the equipment will be. The officers are Herman H. Reuter, president; Alfred J. Barboro, secretary; and Arnold J. Bachter, treasurer.

The Little Wonder Scaffolding Co., Chicago, which manufactures a suspended contractors' scaffold, will lease a plant at 816 West Erie Street. It has purchased all of its equipment. Officers are A. C. Fischer, president; A. J. Fischer, vice-president; and Eugene Sullivan, secretary-treasurer.

Purchase has been made by the Platt, Riley & Hall Equipment Co., Chicago, of a site, 125 x 126 ft., at the corner of Sixty-first Avenue and Twenty-ninth Street, and 75 x 125 ft. on Sixtieth Court.

Contract has been awarded to the Priester Construction Co., local, for a one-story steel addition to the plant of the Davenport Machine Co., Fourth and Division Streets, Rock Island, Ill.

The City Council, Ackley, Iowa, is contemplating the installation of additional equipment, to include transformers, generators, etc., at the municipal power and light plant, for which it is expected to take bids at an early date.

The Charter Gas Engine Co., Sterling, Ill., has plans for a one-story and basement addition, for which bids will soon be asked. Frank D. Chase, Inc., 725 North Michigan Avenue, Chicago, is architect and engineer.

The Dubuque Stone Products Co., Dubuque, Iowa, recently organized with capital of $75,000, is planning for the installation of crushing machinery, grinding equipment, conveying apparatus, etc., at its proposed plant in the vicinity of South Locust Street and the Illinois Central Railroad. T. J. Mulgrew is president.

The Board of Education, Alton, Ill., plans the installation of manual training equipment in its proposed three-story and basement high school estimated to cost $400,000, for which plans are being prepared by J. W. Royer, Flat Iron Building, Urbana, Ill.

Black Brothers, Lincoln, Neb., operating a local feed milling plant, are completing plans for a new electric generating plant near the Blue River, estimated to cost $60,000.

The Birtmann Electric Co., 640 West Lake Street, Chicago, manufacturer of electric equipment, will erect a three-story plant on Fullerton Avenue, 165 x 310 ft., estimated to cost $300,000 with equipment. E. H. Fromann, 640 West Randolph Street, is architect.

The Board of Education, Columbus, Neb., plans the installation of manual training equipment in the proposed two-story and basement high school, estimated to cost $230,000, for which foundations will be laid at once. Fiske & Meginnis, Bankers' Life Building, Lincoln, Neb., are architects.

The Northern Fire Apparatus Co., 920 Eighteenth Avenue, N. E., Minneapolis, has awarded a general contract to the Pike & Cook Co., 2219 Twenty-seventh Avenue, South, for a one-story addition, 27 x 124 ft., at 840-50 Eighteenth Avenue, N. E., with contract calling for completion in September.

St. Louis

ST. LOUIS, Aug. 4.

TENTATIVE plans are being considered by the Kansas City Plating & Enameling Works, 1015 Central Street, Kansas City, Mo., for a one-story and basement factory to cost $23,000.

The Common Council, Texola, Okla., is considering plans for the construction of a municipal electric light and power plant, in conjunction with a proposed waterworks station, to include electrically-operated pumping equipment.

The Union Electric Light & Power Co., Twelfth and Locust Streets, St. Louis, will begin the erection of a one-story automatic power substation on North Eighth Street, for which a general contract has been let to the Gamble Construction Co., 620 Chestnut Street.

The Stroud Gasoline Co., Stroud, Okla., recently organized, has taken over a local gasoline refinery and plans for immediate enlargements, including the installation of additional equipment. E. B. Huston and H. L. Sullivan head the company.

The Polar Wave Ice & Fuel Co., St. Louis, will proceed with the erection of its proposed branch ice-manufacturing plant, estimated to cost $75,000, with equipment, for which a contract for steel frame superstructure has been awarded to the Missouri Bridge & Iron Co., St. Louis.

F. H. Toohey, Kansas City, Mo., has leased from the Scarritt Estate Co., Scarritt Building, the new three-story automobile service, repair and garage building to be erected at 811 East Main Street, estimated to cost $85,000. It will be designed for a capacity of 250 cars.

The Crusader Oil Co., El Dorado, Ark., is said to be planning the construction of a pipe line, with pumping and booster stations, from Norphlet, Ark., to Destrehan, La., about 300 miles, to cost $350,000. W. R. Davis, 1025 East Eighteenth Street, Tulsa, Okla., is president. The company recently acquired the property of the Arkansas Pipe Line & Navigation Co.

The Common Council, Seminole, Mo., has plans for the installation of a municipal waterworks, to include centrifugal pumping equipment and accessory apparatus. Bonds for $44,000 have been approved. The Grant Baker Co., 1116 West Main Street, Oklahoma City, Okla., is engineer.

The Board of Education, Pine Bluff, Ark., plans the installation of manual training equipment in its proposed junior high school, estimated to cost $150,000, for which foundations will be laid at once. Mitchell Seligman, Pine Bluff, is architect.

The Childress Electric & Ice Co., Childress, Tex., will receive bids about Sept. 1 for a new power plant, 90 x 115 ft., estimated to cost $100,000. Transformers, generators and other electrical machinery will be required.

The Gleaner Mfg. Co., 715 Fourth National Bank Building, Wichita, Kan., has been organized with capital stock of $1,100,000 to manufacture harvesting machines and parts. Heretofore the company has built its product by contract, but it is now planning to purchase equipment and do its own manufacturing. C. C. Baldwin is general manager.

Indiana

INDIANAPOLIS, Aug. 4.

A MACHINE shop and parts department will be installed in the two-story automobile service building, 105 x 200 ft., to be erected by the Board of Public Works, City Hall, Indianapolis, for municipal motor trucks and cars, to cost $175,000 with equipment. Bids will be asked on general contract at once. Frank B. Hunter, State Life Building, is architect.

The Fort Wayne Oil & Supply Co., 225 East Columbia Street, Fort Wayne, Ind., is inquiring for a 12-in. pipe machine, motor or belt driven.

The Commercial Asbestos Corporation, Huntington, Ind., recently organized with a capital of 100,000 shares of stock, no par value, to manufacture brake linings for automobiles, railroad insulation products, etc., has acquired the local plant of the Rapid Rim Corporation. The initial works will comprise 75,000 sq. ft. of floor space. The company is headed by E. W. Steinhart, Fort Wayne, Ind., and R. J. Evans, Wabash, Ind.

The Wayne Machine Co., 934 Fort Wayne Avenue, Indianapolis, has leased the building at 325 East St. Joseph Street, totaling about 16,500 sq. ft., for an addition to its works.

The William F. Hartig Plow Co., Evansville, Ind., has awarded a general contract to William A. Smith, Evansville, for its one-story foundry addition, 70 x 160 ft., to cost $25,000. H. Gilbert Karges, Furniture Building, is architect.

The Board of Education, Wakarusa, Ind., plans the installation of manual training equipment at its proposed one and two-story consolidated high and grade school, estimated to cost $100,000, for which foundations will be laid at once. Griffith & Goodrich, Fort Wayne, Ind., are architects.

The Dynes-Pohlman Lumber Co., Twenty-eighth and Twenty-ninth Streets, Indianapolis, will rebuild the portion of its plant destroyed by fire July 25, with loss estimated at $100,000 including equipment. The company will establish temporary works in the vicinity of the former plant pending reconstruction.

The Connersville Blower Co., Connersville, Ind., has let contract for the erection of an addition to its machine shops. The new building, of brick and steel, will be 100 x 120 ft., making the total length of the main machine shop 620 ft. This enlargement in manufacturing space is to provide for an increasing business in rotary displacement meters.

Gulf States

BIRMINGHAM, Aug. 4.

THE United States Engineer, Florence, Ala., will take bids until Sept. 20 for structural steel lock gates, including castings, fittings, etc., for the navigation lock of the Wilson Dam, Tennessee River.

The Valley Ice & Electric Co., Harlingen, Tex., contemplates enlargements in its ice-manufacturing plant to cost $90,000. It is proposed to install equipment to double the present capacity.

The Pittman-Jones Tile Co., Orlando, Fla., recently organized, is planning the erection of a one-story factory for the manufacture of concrete and cement tile. W. S. Pittman is president and Clarkson Jones, secretary.

The Baton Rouge Electric Co., 329 Florida Street, Baton Rouge, La., has plans under way for new repair shops and car barns on the Plank Road. The work will include a one-story machine shop, 27 x 150 ft.; one-story forge and blacksmith shop and other structures.

Fire, July 24, destroyed a portion of the saw mill and lumber plant of the Bohlssen Mfg. Co., Ewing, near Lufkin, Tex., with loss estimated at $100,000 including equipment. It is planned to rebuild.

M. W. Smith & Co., Birmingham, machinery and supplies, have inquiries out for a 20-ton locomotive crane; also one wheel press, 200 tons or larger, and for one electric magnet.

The Armour Fertilizer Works, Union Stock Yards, Chicago, is reported to be planning to rebuild the portion of the plant at Eighth Street and Talleyrand Avenue, Jacksonville, Fla., destroyed by fire July 25, with loss estimated at $200,000 including machinery.

The Birmingham Furniture Co., Jefferson County Bank Building, Birmingham, C. E. Rice, vice-president, is completing plans for the erection of a new four-story factory at Ninth Avenue and Nineteenth Street, 200 x 235 ft., estimated to cost $200,000 including equipment. Machinery will be electrically-operated.

The Arkansas Light & Power Co., Pine Bluff, Ark., is said to have plans for a new steam-operated electric generating station near the Ouachita River, vicinity of Sterlington, La., with initial capacity of 30,000 hp.; a transmission line will be built. The entire project is estimated to cost $2,000,000.

Milwaukee

MILWAUKEE, Aug. 4.

SCATTERING sales are reported by both manufacturers and dealers. Some fair inquiry has been put out, but owing to the high competition, recipients do not care to make public the sources. An encouraging sign is the increased demand from the automotive industries. The agricultural equipment industry is brightening and production is getting on a regular, quantity basis. Tool purchases from this source are as yet insignificant, but there is a reasonable expectancy for moderate business.

The Milwaukee Central Board of Purchases is asking bids until Aug. 12 for furnishing one 30-in. and one 16-in. lathe to the new Riverside pumping station of the municipal waterworks department.

Trustees of Concordia College, 3127 Cedar Street, Milwaukee, have engaged Robert A. Messmer & Bro., architects, 221 Grand Avenue, to prepare plans for a new power, light and heating plant, estimated to cost $50,000 with equipment. It will be 35 x 75 ft., with a 125-ft. stack. Engine, boiler and generator specifications have not been completed. Rev. G. C. Barth is president.

The Beloit, Wis., Board of Vocational Education will select an architect shortly for designing the proposed new central continuation school on a site recently acquired at Pleasant Street and Eclipse Avenue. The estimated cost is $175,000. A. G. McGreary is president of the board.

The LaCrosse Refrigerator Corporation, LaCrosse, Wis., has been incorporated with a capital stock of $200,000 by A. T. Halines, C. R. Hart and Frank W. Winter, to manufacture refrigerators, ice boxes, etc. The new interest has acquired through the La Crosse Industrial Association for $47,000 the plant and other assets of the defunct Mathews Mfg. Co., LaCrosse, and will begin at once retooling the factory, which contains nearly 50,000 sq. ft. and was appraised at $172,000.

The Lake Geneva, Wis., Board of Education has selected plans by Van Ryn & DeGelleke, architects, 114 Grand Avenue, Milwaukee, for the proposed new high school and vocational training institute, for the construction and equipment of which $225,000 has been made available. Bids probably will be asked about Aug. 20 or Sept. 1. Louis Taggart is secretary of the board.

The Townsend Tractor Co., Janesville, Wis., a new corporation, has resumed regular production of 40- and 60-hp. gas and kerosene tractors in the works of the defunct Townsend Mfg. Co., under an arrangement with F. H. Jackman, trustee. Roy Townsend is general manager.

The Northern Wisconsin Produce Co., South Sixth and Quay Streets, Manitowoc, Wis., has plans by B. K. Gibson Co., 624 South Michigan Avenue, Chicago, for a $100,000 cold storage plant, part three stories, which will require a 75-100 ton refrigeration unit, two electric elevators and considerable other equipment. Bids will be taken after Aug. 15. Stanley Eckels is general manager.

The Quality Machine Mfg. Co., Milwaukee, has been incorporated with a capital stock of $80,000 to manufacture a general line of machinery, including some newly developed metal and wood-working units. The principals are T. J. Ware, C. G. Fillips and Anson Eldred. The last-named is president-treasurer Milwaukee Press & Machine Co., 339-343 First Avenue, and initial operations of the new corporation will be conducted in connection with this plant.

A. Sadoff & Son, 24 West Cotton Street, Fond du Lac, Wis., wholesale dealers in metals, waste materials, etc., have been succeeded by the Ben Sadoff Iron & Metal Co. The plant, warehouse and yards are being remodeled and some scrap-handling and other equipment will be installed.

Plans of New Companies

The Paterson Stove Repair Co., 75 Ellison Street, Paterson, N. J., has been organized to continue a business as jobber in stoves, heaters, sheet iron, tin plate, metals, galvanized iron and metal ceilings. It will also manufacture leaders, gutters and stove pipe.

The Seaboard Feldspar Co., 804-6 Equitable Building, Baltimore, has been organized to take over the plant of the Product Operating Co., Baltimore, and plans to operate a grinding mill for commercial feldspar production. A small amount of equipment may be needed later. J. T. Rogers is secretary.

The Kelly Foundry Co. has been incorporated as successor to N. Kelly & Son and is now conducting the same business at 1704 Wharton Street, South Side, Pittsburgh, where the original business has been operating for about 40 years. The company makes castings up to 8 tons. James G. Kelly is president.

The Anthracite Supply Co., 18-20 South Washington Street, Wilkes-Barre, Pa., has been organized as wholesaler and retailer in light hardware, stoves, and kindred products. Eli Israel heads the company.

The Commercial Asbestos Corporation which will manufacture automobile brake linings, railroad insulations and other asbestos products has filed incorporation papers with the secretary of Indiana. Incorporators are E. W. Steinhart, Fort Wayne, Ind.; C. J. Higgins, Detroit, and R. J. Evans, Wabash, Ind. The company is to occupy a modern industrial building at Huntington, Ind., with 75,000 sq. ft. of floor space, built but never occupied by the Rapid Rim Corporation, previously organized to manufacture automobile rims. The company, besides taking over the Huntington plant, has acquired large asbestos holdings at Globe, Ariz. Mr. Steinhart recently retired as head of the E. W. Steinhart Co. of Indianapolis, which handled Cadillac, Oakland and Chevrolet cars.

The Corkoid Corporation, New York, has been incorporated with $250,000 capital stock to manufacture machinery and mechanical equipment. It is not functioning as yet, but plans to lease a plant somewhere in the vicinity of New York and to get under way at an early date. No arrangement has been made for equipment. H. Michaels, F. L. Judd and H. M. Rieger are the incorporators. Address care of Frederick Klein, 277 Broadway.

Joseph W. Schroeck Auto Parts Co., 1493 Eastern Parkway, Brooklyn, incorporated with $100,000 capital stock, has been organized as distributor of automotive accessories. It is now active. Joseph W. Schroeck heads the company.

The Bedford Auto Rim Co., 890 Bedford Avenue, Brooklyn, has been incorporated with $30,000 capital stock and will continue a business as distributor of automobile rims and wheels.

The American Bumper Corporation, recently organized with $200,000 capital stock to manufacture automobile bumpers, is completing plans for a plant at Bush Terminal, Brooklyn, where machinery is being installed. The company hopes to be ready for operation shortly and will begin with an initial capacity of 100,000 bumpers per year.

The Masterola Mfg. Co., 22 Warren Street, New York, has been incorporated with $50,000 capital stock to manufacture loud speakers, variable condensers and other wireless equipment. Ralph Coen heads the company. Equipment has been moved from Hartford, Conn., to the New York plant, where operations will be started as soon as installations can be effected.

The Gressington Corporation, 56 West Forty-fifth Street, New York, recently incorporated with 200 shares of stock, no par value, will manufacture a patented wrench. Manufacturing at first will be done by contract in lots of 5000. The company hopes to have its product on the market by fall. George Keister heads the company.

The Prat-Daniel Corporation, 101 Park Avenue, New York, has been incorporated with $75,000 capital stock to manufacture draft apparatus, blowers, etc. It is associated with the Emile Prat-Daniel Co. of Paris, France, whose product it will handle in this country. Later on the American subsidiary may do its own manufacturing. L. C. Whiton is president.

The Lockjaw Plier Co., 185 Church Street, New Haven, Conn., has been organized to manufacture pliers and other mechanical products. The officers are: Carl A. Mars, president; B. F. Riley, vice-president; Joseph F. Oed, secretary, and P. F. King, treasurer.

Paulson Tools, Inc., a newly organized concern in Wallingford, Conn., has a plant under construction and is assembling machinery. The company will specialize in tools for railroad building. Charles A. Loucks is president; A. R. Paulson, vice-president and general manager, and Charles A. Gorder, secretary. Mr. Paulson was formerly sales manager of the Ives Co., Wallingford.

The Metal Craft Corporation, New Haven, Conn., has been organized with $150,000 capital stock to manufacture mechanical products. Business will be started with $75,000. G. E. Wheeler, 64 Marvel Road, and M. C. Curren, 280 Lloyd Street, both of New Haven, are the chief incorporators.

The Sharon Railway Supply Co., Inc., Sharon, Pa., recently incorporated, will continue a business in the manufacture of crinkle irons for use by railroads in the preservation of ties. J. H. Jones is secretary-treasurer.

The Essex Coal Economies Co., 544 Broad Street, Newark, N. J., has been incorporated with $100,000 capital stock to manufacture heating equipment and like products, but it is not likely that it will engage in production at this time. Present activities will consist in distribution and installation of forced draft equipment. C. B. Nienaber is one of the principals.

The Sea Sled Co., Ltd., West Mystic, Conn., recently incorporated, will continue an established business in the manufacture of sea sleds and surface propeller craft. Albert Hickman is president.

The De Mattia Foundry & Machine Co., Wellington Street and Getty Avenue, Clifton, N. J., recently incorporated, will continue a business in the manufacture of gray-iron and semi-steel castings for De Mattia Brothers, Inc., and for the jobbing trade. B. De Mattia heads the company.

The Vortox Mfg. Co., Pomona, Cal., has been organized with $100,000 capital stock and will manufacture carburetor air cleaners for tractors, trucks and automobiles, continuing the business of a co-partnership which has been active for several years. Its product, the Pamona air cleaner, is standard equipment on Holt caterpillars and McCormack-Deering tractors. H. H. Garner is manager.

The Holtson Mfg. Corporation, 11-9 East York Street, Baltimore, has been incorporated to conduct a repair shop and to do light manufacturing on contract. The company has several products which will be placed on the market in a few months for use by the garage trade and oil companies. J. B. Holtson heads the company.

The Adams Morgan Co., Inc., Upper Montclair, N. J., has been organized to replace the partnership of Adams Morgan Co. It has plant and equipment and will continue manufacturing of radio products along established lines. A. P. Morgan is one of the principals.

The Best Pulley Mfg. Co., 400-10 Talcott Avenue, St. Louis, has been organized to manufacture paper pulleys for electric motors and other high speed or heavy duty machinery. It also will manufacture fiber frictions for transmission. It is already established and operations will begin at once. A. T. Mott is one of the principals.

The firm of W. J. Patterson & Co. has been organized with offices in the Monadnock Building, San Francisco, and the Patterson Building, Denver, to act as a sales company representing the Laclede Steel Co., St. Louis, the St. Louis Steel Products Co., Greenville, Ill., maker of tube mill grinding mediums; J. R. Johnson & Co., Inc., Richmond, Va., manufacturer of axles; Interstate Iron & Steel Co., Chicago, maker of alloy grinding rods, bars and spring steel, and the Worth Steel Co. It will act as special representative for the Railway Steel Spring Co. on the Pacific Coast and the Union Steel Casting Co., Pittsburgh, maker of locomotive frames and castings. Mr. Patterson was sales manager in the West for the Midvale Steel & Ordnance Co. and the Cambria Steel Co. until these were sold to the Bethlehem Steel Co.

The Pruiett-Conklin Electrical Mfg. Co., 417 Calumet Building, Miami, Fla., has been incorporated with $250,000 capital stock and will manufacture instantaneous electric water heaters. All manufacturing will be done by the company. Moman Pruiett is president.

The Boston Gear Works Sales Co., Norfolk Downs (Quincy), Mass., has been organized to handle the marketing of products made by the Boston Gear Works, Inc.

Hodecker Brothers, Commerce and Commercial Streets, Newark, N. J., has been organized to continue a business as jobbers in electro-plating and polishing. The original firm was established 30 years ago. E. Hodecker is one of the principals.

Trade Changes

The Pennsylvania Pump & Compressor Co., Easton, Pa., maker of Pennsylvania air compressors and pumping machinery, has appointed the Kilner-Mills Co., General Motors Building, Detroit, as representative for Michigan and the northwestern section of Ohio.

The Acme Electric Welder Co., Los Angeles, Cal., manufacturer of electric spot welding machines, announces the appointment of the T. L. Knudtson Engineering Co., 184 West Washington Street, Chicago, as representatives for its line of spot welding machines in the Central States.

The Strom Ball Bearing Mfg. Co. has opened the Strom Distributing Station at 2322 South Michigan Avenue, Chicago, for the convenience of automobile and truck dealers, fleet owners, service stations, repair shops, and car owners.

The Monongahela Tube Co., Pittsburgh, announces the opening of a district sales office at 425 West Building, Houston, Tex., under the direction of Craig Geddis, who will have charge of sales of oil country tubular goods and boiler tubes in Texas, Louisiana and Arkansas.

The Illinois Clay Products Co., has moved from Oglesby, Ill., to the Barber Building, Joliet, Ill.

The Buffalo office of the Cutler-Hammer Mfg. Co. located in the Ellicott Square Building, formerly a part of the Eastern district, has been made a part of the central district, of which A. G. Pierce is general district manager, with headquarters at Pittsburgh. The central district includes territories covered by the Buffalo, Pittsburgh, Cleveland and Cincinnati offices. B. A. Hansen is manager of the Buffalo office.

The Conveyors Corporation of America, 326 West Madison Street, Chicago, has appointed the Thermal Efficiency Co., Scarritt Building, Kansas City, Mo., as district representative, handling steam jet ash conveyors, storage tanks, air-tight doors and other conveyor specialties in Western Missouri and Kansas.

The Cleveland Duplex Machinery Co., Cleveland, has been appointed exclusive representative of the J. F. Buhr Machine Tool Co., Detroit, for multiple spindle drill heads and drilling machines. This arrangement covers the Cleveland territory.

The Electrical Supply & Equipment Co., whose main office is at Albany, N. Y., with branches in Elmira and Buffalo, N. Y.; Reading, Scranton and Wilkes-Barre, Pa., have been appointed distributor for Eagle neutrodyne receivers.

The Detroit Copper & Brass Rolling Mills, Detroit, will move its Chicago headquarters on Aug. 1, from 111 North Jefferson Street to its new building at 1326 West Washington Boulevard.

The Pennsylvania Flexible Metallic Tubing Co. has moved to larger quarters at 120 High Street, Boston.

The Whiting Corporation, Harvey, Ill., builder of cranes, gate hoists and special machinery for power plants, has established a separate department to handle complete installations of head gates, sluice gates, etc. The department will be in charge of A. E. Johnson, who has had many years' experience in the design and construction of such equipment. While with the Dominion Bridge Co., he designed and supervised construction of installations for the Shawinigan Water & Power Co., the Laurentide Co., the Abitibi Power & Paper Co. and others, including the major part of large installations made in the Province of Quebec for a period of ten years.

The Yale Electric Corporation, Tillary and Pearl Streets, Brooklyn, successor to the Franco Electric Corporation, is engaged in manufacturing reflectors, heads and all brass tubings used in the construction of flashlights. It uses quantities of sheet brass. W. W. Stah is assistant sales manager.

The Sill Stove Works, Rochester, N. Y., has changed its corporate name to the Sterling Range & Furnace Corporation. Frederick Will, Sr., is president.

The E. L. Essley Machinery Co., 555 West Washington Boulevard, Chicago, has been appointed exclusive sales agent in the Chicago and Milwaukee districts for the Rockford Milling Machine Co., Rockford, Ill., manufacturer of milling machines, and the Rockford Tool Co., maker of Sundstrand manufacturing lathes and Sundstrand stub lathes.

The Stocker-Rumely-Wachs Co., 117 North Jefferson Street, Chicago, has been appointed exclusive sales agent in the Chicago, Milwaukee and western Michigan districts for the cutter and tool grinders and cut-off saws manufactured by the Greenfield Tap & Die Corporation, Greenfield, Mass.

Mitsubishi Shoji Kaisha, Ltd., Tokio, Japan, has been made exclusive agent in Japan, Formosa, Korea, Manchuria and Shantung, for Norton grinding machines, manufactured by the Norton Co., Worcester, Mass. Mitsubishi Shoji Kaisha, Ltd., have a New York office at 120 Broadway.

The Dayton, Ohio, office of the Wyckoff Drawn Steel Co., in charge of George H. Rehling, district manager of sales, has been moved to Rooms 1045-1046 U. B. Building.

John Henry Andrews & Co., Ltd., representing the Toledo Steel Works, Sheffield, England, has opened South African offices in the Oceana Building, Johannesburg, Transvaal. The address is Post Office Box 1189.

The E. L. Essley Machinery Co. of Chicago and Milwaukee has been appointed exclusive representative in that territory for Rockford millers and sundstrand lathes, made by the Rockford Tool Co., Rockford, Ill. A complete line of these machines will be carried in the Chicago and Milwaukee stores.

The Palmer Steel Co. has discontinued its offices at Hartford, Conn., and will have offices at New Haven, Conn., in charge of Horace Wilkinson, who was formerly with the Bethlehem Steel Co.

The Walworth Mfg. Co., Boston, has opened a Buffalo office with Fred J. Chittenden in charge. Mr. Chittenden has been with the company since 1901 and for several years has been representative in New York State.

The Norma Co. of America, Long Island City, N. Y., maker of precision ball bearings, has changed its corporate name to Norma-Hoffmann Bearings Corporation, with the same management and personnel as before. The company has completed a new plant at Stamford, Conn.

The Central Iron & Steel Co., manufacturer of plate steel, Harrisburg, Pa., has appointed C. A. Fisher, with offices at 303 Keystone Building, Houston, Tex., and 1918 W. T. Wagner Building, Fort Worth, Tex., as district representative.

The Industrial Works, has opened a district office at 455 Monadnock Building, San Francisco, in charge of J. M. McGuire, who has been with the Industrial Works for 20 years as construction and erecting engineer.

C. Davis & Co. has moved its office to suite 475-476 Union Trust Building, Pittsburgh.

The Master Builders Co. has moved general offices to the Seventy-first Euclid Building, 7016 Euclid Avenue, Cleveland.

The French Creek Foundry, Franklin, Pa., has been purchased by the Franklin Valveless Engine Co., whose plant recently was destroyed by fire.

The Baldwin Locomotive Works has purchased the Tindel Morris steel plant at Eddystone, Pa. The plant is on a tract of ten acres adjoining the company's foundry. Purchase price was said to be about $250,000.

The William Constable Co., Providence Building, Duluth, Minn., will represent the De Laval Steam Turbine Co., Trenton, N. J., having purchased the H. J. Rich Co., the former representative. The territory covers the northern parts of Minnesota, Wisconsin and the entire northern peninsula of Michigan. Mr. Constable was chief mechanical and electrical engineer for the Republic Iron & Steel Co. of Duluth, for the past five years, and previously was connected with the General Electric Co. in the mining, locomotive and steam turbine department at Duluth.

G. C. Kahl, 404 Dwight Building, Kansas City, Mo., has been appointed sales representative of the De Laval Steam Turbine Co. in Arkansas, Nebraska, Kansas, Oklahoma and parts of Iowa and Missouri. He was formerly connected with the Thermal Efficiency Co., representing the De Laval company in Kansas City, and prior to that was sales engineer for the General Electric Co. in Kansas City.

The Cleveland Wrought Products Co., has purchased the machinery and equipment of the Steelcraft Parts Co., and will continue manufacturing the Steelcraft line of tools, covering chisel blanks, rivet sets and bushings for pneumatic hammers, as well as a line of punches and dies.

The Morse Engineering Co., St. Louis, has been appointed exclusive territorial agent for the Ramsey Chain Co., Albany, N. Y.

The Hanna Engineering Works, 1765 Elston Avenue, Chicago, manufacturer and distributor of Hanna riveting machines, air hoists, sand sifters, I-beam trolleys and Mumford molding machines, is now represented in Maine, New Hampshire, Vermont, Massachusetts and Rhode Island, by the Eggleston Supply Co., 259 Franklin Street, Boston.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	6.75c. to 7.00c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in., base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.25c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.50c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.15c.
Square, flats and hex	4.65c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.30c. to 4.45c.	.....
Nos. 22 and 24	4.45c. to 4.60c.	5.10c.
No. 26	4.50c. to 4.65c.	5.15c.
No. 28*	4.60c. to 4.75c.	5.25c.
No. 30	4.70c. to 4.95c.	.....

Galvanized

	Per Lb.
No. 14	4.70c. to 4.85c.
No. 16	4.85c. to 5.00c.
Nos. 18 and 20	5.00c. to 5.15c.
Nos. 22 and 24	5.15c. to 5.30c.
No. 26	5.30c. to 5.45c.
No. 28*	5.60c. to 5.75c.
No. 30	6.10c. to 6.25c.

*No. 28 and lighter, 36 in. wide, 20c. higher.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt...	—41	—24	½ in. Butt...	— 4	+19
¾ in. Butt...	—46	—32	¾ in. Butt...	—11	+ 9
1-3 in. Butt..	—48	—34	1-1½ in. Butt.	—14	+ 6
2½-6 in Lap.	—44	—30	2 in. Lap....	— 5	+14
7-8 in. Lap...	—41	—11	2½-6 in. Lap.	— 9	+ 9
9-12 in. Lap..	—34	— 6	7-12 in. Lap..	— 3	+16

Bolts and Screws

Machine bolts, cut thread,
50 to 60 and 10 per cent off list

Carriage bolts, cut thread,
40 to 40, 10 and 10 per cent off list

Coach screws, 50 and 10 to 65 per cent off list

Wood screws, flat head iron,
75, 20 and 10 per cent off list

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c. to 4.50c.
Annealed soft	4.50c. to 4.75c.
Galvanized annealed	5.15c. to 5.40c.
Coppered basic	5.15c. to 5.40c.
Tinned soft Bessemer	6.15c. to 6.40c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	16¾c. to 18¼c.
High brass wire	17¼c. to 18¼c.
Brass rods	14½c. to 15½c.
Brass tube, brazed	24¾c. to 25¾c.
Brass tube, seamless	21 c. to 22 c.
Copper tube, seamless	22¼c. to 23¼c.

Copper Sheets

Sheet copper, hot rolled, 20⅛c. to 20⅝c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14 x 20	
Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Prime	Seconds
		80 lb.. $6.15	$5.90
		90 lb.. 6.30	6.05
		100 lb.. 6.45	6.20
IC.. $11.25	$8.85	IC.. 6.65	6.40
IX.. 12.85	10.85	IX.. 7.85	7.60
IXX.. 14.40	12.55	IXX.. 9.00	8.75
IXXX.. 15.75	13.85	IXXX.. 10.35	10.10
IXXXX.. 17.00	15.05	IXXXX.. 11.35	11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	50c.
Bar	55c. to 65c.

Copper

Lake ingot	16 c.
Electrolytic	15½c.
Casting	14½c.

Spelter and Sheet Zinc

Western Spelter	7½c.
Sheet zinc, No. 9 base, casks	10½c. open 11¼c.

Lead and Solder*

American pig lead	8¾c. to 9¼c.
Bar lead	11c. to 12c.
Solder, ½ and ½ guaranteed	37 c.
No. 1 solder	34 c.
Refined solder	28½c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb	75c. to 90c.
Commercial grade, per lb	35c. to 50c.
Grade D, per lb	25c. to 35c.

Antimony

Asiatic	10½c. to 11c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb	36c.

Old Metals

Business is active and values are maintained. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	11.25
Copper, heavy wire	10.75
Copper, light bottoms	8.75
Brass, heavy	6.50
Brass, light	5.50
Heavy machine composition	8.25
No. 1 yellow brass turnings	6.75
No. 1 red brass or composition turnings	7.50
Lead, heavy	6.50
Lead, tea	5.00
Zinc	3.50
Cast aluminum	15.00
Sheet aluminum	15.00